"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC: 621.892:621.90.025

YELIZAROV, A. I., Engineer, SUVOROV, A. A., Candidate of Technical Sciences, Senior Instructor"

"Cutting Small-Diameter Threads With Low-Frequency Vibrations"

Moscow, Izv. VUZov: Mashinostroyeniye, No 9, 1972, pp 150-153

Abstract: The paper describes an experimental vibration stand designed and built at the Moscow Higher Technical Academy imeni N. E. Bauman for studying the effect of axial audio frequency vibrations (100-800 Hz) on the process of thread cutting. The installation is based on the 2N118 vertical drill. The basic parts are an oil pump station, a slide-valve unit, and a hydraulic amplifier. These elements are shown in the diagram. The installation operates as follows. Oil is pumped under pressure from station 1 to slide-valve unit 2 with rotating valve. The valve is turned by DC motor 3 and directs the oil alternately into the upper and lower cavities of cylinder 4 while simultaneously connecting the opposite cavity to waste. The valve is made in such a way that in one turn there are 20 vibrations of piston 5 whose upper section holds the workpiece. The frequency of vibrations of this piston is controlled by vary-

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USSR

YELIZAROV, A. I., SUVOROV, A. A., Izv. VUZov: Mashinostroyeniye, No 9, 1972, pp 150-153

ing the rpm of the DC motor. Corresponding to every 300 rpm of the motor is another 100 Hz of workpiece vibration. Leaf spring 6 with its upper section securely fastened to the piston is installed on the hydraulic cylinder to fix the piston of the hydraulic amplifier in the middle position and to keep it from turning. Foil strain-gauge resistors 7 are cemented on the neck of the piston and on the spring to register the torque and the vibration amplitude. Curves are given showing torque as a function of vibration frequency for materials which are difficult to machine. It was found that low-frequency vibrations in the axial direction are an effective means of reducing torque and increasing the stiffness of the tap when machining hard materials. The quality of the finished thread is considerably improved by this technique when especially tough materials such as 2Kh13 steel are being machined. Vibrations with a frequency of 400-500 Hz and peak-to-peak amplitude of relative displacement of tap and workpiece of 2-5 μ are recommended for most materials. These data can be taken as a basis for designing an industrial model of the vibration stand, or a vibration chuck.

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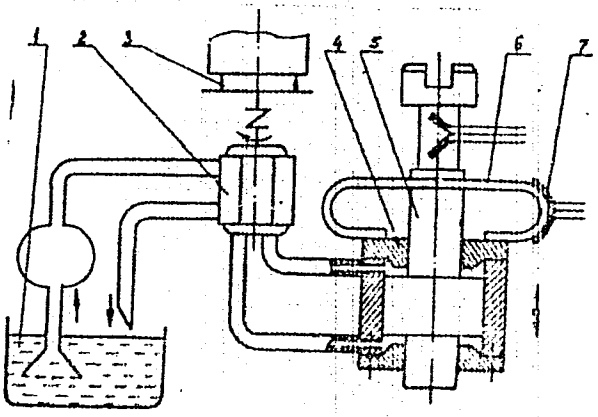
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

YELIZAROV, A. I., SUVOROV, A. A., Izv. VUZov: Mashinostroyeniye, No 9, 1972, pp 150-153



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC:535.82:546.791

SUVOROV, A. L., KUKAVADZE, G. M., RAZINKOVA, T. L., SHAROV, B. V., FEDORCHENKO, V. A., BOBKOV, A. F. and KUZNETSOV, V. YA.

"Autoionic Microscopy of Uranium. Preliminary Results"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 14-18

Abstract: The primary factor inhibiting autoionic microscopic analysis for new (particularly fissionable) materials, apparently, is the lack of any final theory of the formation of images in the autoionic microscope, or of a complete understanding of the physical principles upon which the field evaporation phenomenon is based. The first stage of the work reported is an explanation of the capabilities of the autoionic microscopic method for studying uranium specimens, and a search for more effective modes of analysis, as well as the development of certain associated methodological problems. It is found that uranium needles can resist the mechanical stresses imposed in the autoionic microscope. The best result is achieved using pure argon and a mixture of He + 0.5% H_2 as imaging gases. A computer is used to construct a model of the autoionic image of α-uranium and standard stereographic projections for α-uranium in the planes (010), (001) and (110), allowing the crystallographic faces to be indicated on the photomicrographs produced. Preliminary results presented indicate the possibility in principle of autoionic microscope analysis (in atomic details) of uranium specimens.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 669-172:541.12.037

SUVOROV, A. L., and KUKAVADZE, G. M.

"Mobility of Displaced Atoms and Their Complexes in Crystalline Lattice of Tungsten Under the Influence of an Electric Field"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 108-111

Translation: A helium ion projector is used to study the development of displaced atoms and small complexes in tungsten specimens bombarded with deutrons with energies of 5 MeV. A method is described for identification of individual atoms displaced into interstitial positions and small complexes of these atoms on ion images of specimens subjected to bombardment. It is demonstrated that the individual displaced atoms diffuse to the surface under the influence of the electric field in the projector at 78°K. The temperature threshold for immobility of the displaced atoms with an electric field intensity of 450 Mv/cm is assumed to be 21°K. It is demonstrated that the complexes of displaced atoms observed on ion images of bombarded tungsten specimens, containing up to 10 individual atoms, are practically immobile in a strong electric field at 78°K. This allows their crystallographic distribution to be determined. 3 Figures; 5 Biblio. Refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 669-172:539.2

SUVOROV, A. L., and KUKAVADZE, G. M.

"Nature of Defects in Single Crystals of Tungsten as a Function of Energy of Bombarding Deutrons and Method of Irradiation"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 103-107

Translation: Results are presented from an experiment studying the structure of tungsten single crystals subjected to bombardment with deutrons at energies of 100 KeV, 4, 5, 8, 10, and 12 MeV, performed in a low-temperature helium ion projector.

Significant differences are established in the nature of defects formed with the two methods of irradiation, differing in the sequence of preparation and irradiation of specimens. The dependence of the nature and concentration of defects (individual vacancies, vacancy clusters, individual displaced atoms and their complexes and dislocations) observed on ion images of the irradiated specimens on energy of bombarding deutrons is studied. 3 Figures; 6 Bibliographic References.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR UDC 669-172:621.3.032.26

KUKAVADZE, G. M., SUVOROV, A. L., and SHCHAROV, B. V.

"Study of Neutron-Bombarded Tungsten Single Crystals Using an Ion Projector"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 99-102

Translation: A low-temperature helium ion projector is used to study defects arising upon bombardment of tungsten specimens with fission-spectrum neutrons (intergral flux $1.5 \cdot 10^{19}$ n/mm^2). The formation of individual vacancies is detected (concentration $\sim 10^{-4}$), as well as individual atoms displaced into interstitial positions, vacancy clusters ~10 A in diameter and larger, and dispersion clusters encompassing multiatomic areas, in which a significant number of atoms of the lattice are located. 3 Figures; 5 Biblio. Refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--FIELD ION MICROSCOPY OF RADIATION DEFECTS IN SINGLE CRYSTALS -U-

AUTHOR--SUVOROV, A.L.

COUNTRY OF INFO--USSR

SOURCE--USP. FIZ. NAUK 1970, 101(1), 21-52

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL, CRYSTAL DEFECT, MICROSCOPY, ION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0587 STEP NO--UR/0053/70/101/001/0021/0052

CIRC ACCESSION NO--AP0137672

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW IS GIVEN OF THEORY AND EXPTL. METHODS. FACILITY: INST. TEOR. EKSP. FIZ., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

UNCLASSIFIED PROCESSING DATE--03JUL7C

TITLE--AUTOION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO ALPHA PARTICLE BOMBARDMENT -U-

AUTHOR--SUVOROV, A.L., KUKAVADZE, G.M., BOBKOV, A.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 1, PP 85-87

DATE PUBLISHED--------70

18
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23

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL STRUCTURE, TUNGSTEN, PARTICLE BOMBARDMENT, ALPHA PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1973/1C72 STEP NO--UR/0056/70/058/001/0085/0087

CIRC ACCESSION NO--AP0030031

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

Acc. Nr: AP0038031 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 85-87

AUTO-ION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO α-PARTICLE BOMBARDMENT

A. L. Suvorov, G. M. Kukavadze, A. F. Bobkov

Tungsten crystal imperfections due to bombardment with α particles of various energies (from 12.7 to 23.4 MeV) are investigated by means of a helium ion projector operating at 78° K. The integral irradiation doses varied between $1.7 \cdot 10^{13}$ and $1.6 \cdot 10^{16}$ particles /cm². Four main types of imperfections were observed in the irradiated samples: single vacancies, atoms displaced to interstitial positions, vacancy clusters of ~ 10 Å diameter and small complexes of displaced atom on the surface.

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REEL/FRAME
19731072

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

UNCLASSIFIED PROCESSING DATE--03JUL70

TITLE--AUTOION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO ALPHA PARTICLE BOMBARDMENT -U-

AUTHOR--SUVOROV, A.L., KUKAVADZE, G.M., BOBKOV, A.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 1, PP 85-87

DATE PUBLISHED--------70

18
5
23

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL STRUCTURE, TUNGSTEN, PARTICLE BOMBARDMENT, ALPHA PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1973/1072 STEP NO--UR/0056/70/058/001/0085/0087

CIRC ACCESSION NO--APO038031

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

Acc. Nr: AP0038031 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 85-87

AUTO-ION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO α-PARTICLE BOMBARDMENT

A. L. Suvorov, G. M. Kukavadze, A. F. Bobkov

Tungsten crystal imperfections due to bombardment with α particles of various energies (from 12.7 to 23.4 MeV) are investigated by means of a helium ion projector operating at 78° K. The integral irradiation doses varied between $1.7 \cdot 10^{15}$ and $1.6 \cdot 10^{16}$ particles /cm². Four main types of imperfections were observed in the irradiated samples: single vacancies, atoms displaced to interstitial positions, vacancy clusters of ~ 10 A diameter and small complexes of displaced atom on the surface.

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REEL/FRAME
19731072

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 621.385.633.14

KIRICHENKO, A.YA., LYSOVA, L.A., SUVOROV, A.N.

"Experimental Investigation Of A Slow-Wave Structure Of The Ring-Plane Type"

Kiev, Izvestiya Vuzov SSSR--Radioelektronika, Vol XIV,No 10,1971,pp 1234-1236

Abstract: The results are described of an experimental investigation of a slow-wave structure of the ring-plane type with two supporting planes in the 3-cm range. The purpose of the "hot" tests was to determine the possibility of modeling this system in the millimeter range. Received by editors 7 Dec 60. 6 ref. 3 fig.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

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USSR

UDC 621.039.512.45

BASS, L. P., BRODER, D. L., ZHILKIN, A. S., KUTUZOV, A. A., SMETANIN, A. A., SUVOROV, A. P., SHESTOPALOV, Ye. V., SHIPILOV, A. Ye.

"Reactor Neutron Spectra in a Cylindrical Neutron Duct Surrounded by Water"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics -- Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 123-129 (from RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.61)

Translation: The energy and spatial distributions of neutrons with energies above 200 kev in an iron cylindrical neutron duct at distances up to 66 cm from its origin are discussed. The experimental data are compared with computational results made by two-dimensional programs using the P_1-approximation of the spherical harmonics method and the $2D_{10\times5}$-approximation of the characteristic method. The presence of experimental data on the neutron energy spectra makes possible a corrective check on the methods for calculating the parameters of shields of limited transverse dimensions. 7 ill., 8 ref.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 621.039.51.12

IGNATOV, A. A., SHIKHOV, S. B., SUVOROV, A. P.

"Semianalytical Method for Calculating the Neutron Field in a Straight One-Dimensional Shield"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics -- Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 57-63 (from RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.60)

Translation: The exact solution of neutron transport boundary value problems can be obtained on the basis of a complete system of elementary solutions of the kinetic equation (the Case method). The boundary value problem for a shielding layer irradiated by an external source is reduced to a system of linear algebraic equations on the basis of the representation of the continuous portion of the spectrum of the transport operator by discrete points. Calculations by the method of elementary solutions in one- and two-group consideration are compared with calculations by the method of discrete ordinates based on the ROZ program. 2 ill., 10 ref.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 621.039.538

ORLOV, V. V., SUVOROV, A. P.

"Current State of Methods for Calculating Parameters of Radiation Shielding of Reactors"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics -- Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 7-21 (from RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.66)

Translation: Problems which must be solved in the process of designing a reactor shield have by now been determined to a considerable degree. Among these are the passage of radiation in media with a one-dimensional geometry, the passage of radiation in media with two- and three-dimensional geometries consideration of multidimensional heterogeneities, the distribution of radiation in media with cavities, reflection of radiation from the media, the angular distribution of radiation coming from the shield, and optimization of the shield design using modern mathematical methods and computers. Each of these problems requires the development of special computational methods and the development of special computer programs to a greater or lesser degree.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC: 53.07/.08+53.001.5

BOLYATKO, V. V., LIPUNOV, A. D., MASHKOVICH, V. P., SUVOROV, A. P., TSYPIN, S. G.

"Attenuation of Soft-Spectrum Neutrons in Continuous Shields"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 142-146 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A727)

Translation: Soft-spectrum neutron propagation is studied in serpentine ore on an experimental installation -- an intermediate neutron converter. Serpentine ore is used as a filler in concrete, and sometimes independently as a shielding material. The resultant experimental data on the spatial distribution of neutrons of various energies in serpentine ore agree well with the results of calculation done by the ROZ-1 computer program using a specially compiled system of multigroup neutron constants. Only a slight difference is observed in the relative attenuation of the neutron flux density for measurements by resonance indicators. M. L.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE EFFECT OF ENGINEERING FACTORS ON THE MECHANICAL PROPERTIES OF AL9 ALLOYS POURED IN A CHILL MOLD -U-

AUTHOR-(03)-MALTSEV, V.P., KRYSIN, B.T., SUVOROV, A.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, MASHINOSTROYENIYE, NO. 1, 1970, PP 176-180

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, METAL CASTING, FOUNDRY MOLD/(U)AL9 ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0517 STEP NO--UR/0145/70/000/001/0176/0180

CIRC ACCESSION NO--AT0100978

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0100978

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF METAL FLOW RATE IN THE MOLD, POURING TEMPERATURE, MOLDS, AND THE THICKNESS OF THE MOLD COATING ON THE MECHANICAL PROPERTIES OF AL9 ALLOY CASTINGS IN CHILL MOLDS ARE EXAMINED. A CHART SHOWING THE EFFECTS OF RISER DIAMETER ON MECHANICAL PROPERTIES IS GIVEN. EXPERIMENTAL CASTINGS OF PLATES 5, 8, 12, AND 16 MM THICK AND RISER DIAMETERS OF 8, 14, 18, AND 24 MM WERE MADE AND THE RESULTS, REFLECTING THE MECHANICAL PROPERTIES (TENSILE STRENGTH) FOR THE ZONES AND SUBZONES OF THE PLATES WERE PLOTTED GRAPHICALLY. THE BEST MECHANICAL PROPERTIES WERE OBTAINED AT POURING TEMPERATURES OF 680 AND 700DEGREESC AND THE BEST TENSILE AT MOLD TEMPERATURES OF 200-250DEGREESC AND A MOLD LINER THICKNESS OF 0.2-0.65 MM. IT IS CONCLUDED THAT THE POURING SPEED SHOULD BE MINIMUM TO PERMIT UNIFORM HEATING OF THE MOLD. IT IS RECOMMENDED THAT FLAT CASTINGS WITH A THICKNESS OF 7-8 MM NOT BE POURED IN THE HORIZONTAL. CASTINGS THICKER THAN 8 MM SHOULD HAVE SUPPLEMENTAL POURING (OR INJECTION) OR SHOULD BE POURED IN THE VERTICAL.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--MASS SPECTROMETRIC STUDY OF THE COMPOSITION OF THE VAPOR OVER ALCL SUB3 .PDCL SUB3 -U-

AUTHOR-(03)-SHUBAYEV, V.L., SUVOROV, A.V., SEMENOV, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 939-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM COMPOUND, CHLORIDE, MASS SPECTROMETER, MASS SPECTROSCOPY, VAPOR STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1076 STEP NO--UR/0078/70/015/004/0939/0940

CIRC ACCESSION NO--AP0123069

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AP0123069 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MASS SPECTRA OF 150DEGREES VAPOR ABOVE THE ALCL SUB3-POCL SUB2 SYSTEM SHOWED HIGH CONCN. OF ALPOCL SUBN PRIME POSITIVE (N EQUALS 2-6). THE SUM OF RELATIVE INTENSITITES OF ION CONTG. AL (210) WAS CLOSE TO THE SUM OF RELATIVE INTENSITIES OF IONS CONTG. P (240). SINCE THE VOLATILITIES OF ALCL SUB3 AND POCL SUB2 VARY MARKEDLY UNDER THE EXPTL. CONDITIONS, ONE ASSUMES THAT APPROX. THE SAME RELATIVE INTENSITIES OCCUR DUE TO DISSOCIATIVE IONIZATION IN THE VAPOR PHASE. THE PRESENCE OF ALPOCL SUB2 SHOWS THAT THE ADDUCT IS BOUND VIA THE O ATOM.

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2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134443

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 1500 TON PR 7 HYDRAULIC PRESS HAS BEEN IN USE IN ONE MAGNESIUM PRODUCTS REFRACOTRY SECTION SINCE 1964 FOR THE MANUFACTURE OF REFRACOTRY PRODUCTS. OPERATION OF THE PRESS HAS SHOWN VARIOUS DESIGN DEFECTS OF INDIVIDUAL UNITS, RESULTING IN THE PRODUCTION OF PRODUCTS WITH EXCESSIVE VARIATIONS IN THICKNESS. THE MODIFICATIONS WHICH WERE PERFORMED TO IMPROVE CONSISTENCY OF PRESS OPERATION ARE DESCRIBED. THEY INCLUDED RATHER EXTENSIVE MODIFICATIONS TO THEY HYDRAULIC SYSTEM, REPLACEMENT OF A CYLINDER WITH A CYLINDER OF SMALLER DIAMETER, REROUTING OF OIL SUPPLY TO THE CONTROL APPARATUS, BYPASSING A 60 ATMOSPHERE SYSTEM AND PRESSURE CYLINDER, SIMPLIFICATIONS OF THE ELECTRICAL SYSTEM, REPLACEMENT OF A COOLING AND FILTER PUMP, REPLACEMENT OF ROTATIONPLUNGER PUMPS WITH PLUNGER PUMPS, AND INSTALLATION OF ADDITIONAL OIL FILTERING DEVICES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

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KOSHCHEYEV, G. A., SUVOROV, A. V.

"Improvement of the Design of the PR-7 Hydraulic Press"

Moscow, Ogneupory, No 3, Mar 70, pp 18-20

Abstract: The 1500-ton PR-7 hydraulic press has been in use in one magnesium products refractory section since 1964 for the manufacture of refractory products. Operation of the press has shown various design defects of individual units, resulting in the production of products with excessive variations in thickness. The modifications which were performed to improve consistency of press operation are described. They included rather extensive modifications to the hydraulic system, replacement of a cylinder with a cylinder of smaller diameter, rerouting of oil supply to the control apparatus, bypassing a 60 atmosphere system and pressure cylinder, simplifications of the electrical system, replacement of a cooling and filter pump, replacement of rotation-plunger pumps with plunger pumps, and installation of additional oil filtering devices.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

SUVOROV, B.

ENGINEERING PAPERS

A Preliminary Approach to Process Automation

A. ZHUKOVSKY - CANDIDATE OF ...
Honored Scientist of the Ukrainian SSR,
Director for Scientific Work, Kiev University

V. GERUSOV - SCIENTIFIC ... V. I.
Candidate of Technical Sciences, Director, Laboratory of Chemical Cybernetics

B. SUVOROV
Engineer/Statistics

University science in the past was rarely known to deal with the solution of specific applied problems. But, life has made significant amendments to the viewpoint of greater and lesser science." At present, universities with strong scientific potential, many Academy and industry scientific research institutes, design bureaus, and higher educational institutions are uniting their efforts to solve the far-reaching tasks set down by the Twenty-fourth Party Congress.

We shall illustrate the importance of these relationships, using Kiev State University's chemical cybernetics research laboratory as an example. Personnel there are working on problems dealing with the mathematical and economic analysis of chemical technology processes in various branches of industry. The ultimate goal of the research is to determine prospects and methods for developing specific automated systems for controlling technological processes.

Having analyzed the status and prospects for the introduction of automated systems for controlling technological processes in the chemical, petroleum refining, food, pulp and paper industries, as well as in other industries of the Ukrainian SSR, scientists formulated a number of technical, mathematical, socio-economic, and organizational tasks which must be solved in the very near future.

Computer equipment now operates at many enterprises. In the development of automated systems for controlling technological processes, we will

Translation of excerpts from the article "Electronics Advises" ("Sovetskaya Estonia") (Sotsialisticheskaya Industriya), March 27, 1973, p. 4, translated from the Russian by Irene Agnew.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC: 519.2

GUREVICH, A. D., GORDEYEV, A. A., and SUVOROV, B. V.

"Dispersion Characteristics of Estimates in Incorrect A Priori Statistics"

Tr. Sev.-Zap. zaoch. politekhn. in-ta (Transactions of the Northwest Correspondence Polytechnical Institute--collection of works) No 15, 1971, pp 115-116 (from RZh--Matematika, No 6, 1972, Abstract No 6V146)

Translation: In an ordinary system of a linear regression, the best linear estimates as well as estimates in which the covariation matrix of observations is replaced by another positively defined matrix are written. An obvious inequality for the dispersions of these estimates is obtained. A. Bernshteyn

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 632.95

SUVOROV, B. V., KAGARLITSKIY, A. D., KAN, I. I., YEMEL'YANOV, V. L., KUTZHANOV, R. T., and PAVLOV, YE. A.

"A Means of Obtaining 3-Cyanopyridine"

USSR Author's Certificate No 311914, filed 28 Jan 70, published 11 Oct 71 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N604P by T. A. Belyayeva)

Translation: $3\text{-}CNC_5H_4N$ (I) is obtained by oxidative ammonolysis of $2\text{-}R\text{-}5\text{-}R'$ C_5H_3N (II) (Raand R' = alkyl, alkenyl) over a transition-metal catalyst. A mixture of steam and air (300-500 and 100-300 mole, respectively, to each mole of (II) is used as an oxidizing agent. Through a reaction tube (1100X22mm) filled with granulated catalyst (V_2O_5 and TiO_2 in a 1:16 molar ratios) are passed II (R=Me. $R'=CH=CH_2$), water Air, and NH_3 at a rate of 23 g, 950 g, 30001, and 75 g respectively for each liter of catalyst every hour at a temperature of 370° for 10 hours (time of contact: 0.4 seconds). The catalyst is washed with petroleum ether, extracted with $CHCl_3$ and dried over Na_2SO_4. I is separated by rectification. The yield is 83.2%, boiling point 100-4°/24, melting point 50.4°. I is used as a plant-growth stimulant in agriculture, and for the production of nicotinamide. 1/1

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USSR

UDC: 519.2

GUREVICH, A. D.GORDEYEV, A. A., SUVOROV, B. V.

"Dispersion Properties of Estimates in the Case of Incorrect a Priori Statistics"

Tr. Sev.-zap. zaoch. politekhn. in-ta (Works of the Northwest Polytechnical Correspondence Institute), 1971, No 15, pp 115-116 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V146)

Translation: The best linear estimates are written out in the conventional linear regression scheme, as well as estimates in which the covariation matrix of observations is replaced by another positive-definite matrix. An obvious inequality is derived for the variances of these estimates. A. Bernshteyn.

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USSR

UDC 51:621.391

SUVOROV, B. V., MUSOLIN, A. K.

"Compression of Measurement Information"

Tr. Ryazan. Radiotekhn. In-ta [Works of Ryazan' Radio Engineering Institute], No 24, 1970, pp 221-229, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V648 by Yu. Pyatoshin).

Translation: Some general problems of reduction of redundant information in a transmitted message are discussed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/3 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF AMMONIA ON THE DETERMINATION OF SOME PYRIDINE DERIVATIVES BY GAS LIQUID CHROMATOGRAPHY -U-

AUTHOR-(03)-KAN, I.I., SEMBAYEV, D.KH., SUVOROV, B.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 374-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT

TOPIC TAGS--AMMONIA, PYRIDINE, GAS CHROMATOGRAPHY, AQUEOUS SOLUTION, LIQUID CHROMATOGRAPHY, CHROMATOGRAHIC ANALYSIS, ALDEHYDE, ORGANIC NITRILE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2168 STEP NO--UR/0075/70/025/002/0374/0377

CIRC ACCESSION NO--AP0125749

UNCLASSIFIED

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2/3 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125749

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MORE COMPLETE ELUTION OF SUBSTANCES FROM THE COLUMN DURING GAS LIQ. CHROMATOG. OF AQ. SOLNS. OF PYRIDINE BASES AND THEIR O CONTG. AND N CONTG. DERIVS. WITH GLYCEROL AND POLYETHERS USED AS LIQ. PHASES CAN BE ACHIEVED BY ADDING 1.01-0.05 VOL. PERCENT NH SUB3 TO THE CARRIER GAS. A METHOD IS SUGGESTED FOR THE ANAL. OF A MIXT. OF PYRIDINE, ME AND ET DERIVS. OF PYRIDINE, CERTAIN PYRIDINECARBOXALDEHYDES, AND PYRIDINEMONOCARBONITRILES. PYRIDINE MIXTS. ARE ANALYZED ON A CHROMATOGRAPH WITH A 150 CM LONG AND 0.4 CM INTERNAL DIAM. COLUMN, THE STATIONARY PHASE 30PERCENT GLYCEROL ON CELITE, COLUMN TEMP. 80DEGREES, RATE OF HE CARRIER GAS 1.5 ML-MIN, OF H 50 ML-MIN, OF AIR 75 ML-MIN. THE EMERGENCE, TIME UNDER THESE CONDITIONS IS 16.2, 14, 22.1, 26.3, AND 9.8 MIN FOR PYRIDINE, 2-PICOLINE, 3-PICOLINE, 4-PICOLINE, AND 2,6,LUTIDINE, RESP. PYRIDINE BASES IN A MIXT. WITH PYRIDINECARBOXALDEHYDES AND PYRIDINEMONOCARBONITRILES ARE ANALYZED ON A CHROMATOGRAPH WITH A 200 CM LONG COLUMN OF 0.4 CM DIAM., STATIONARY PHASES 25PERCENT TWEEN 20 ON INZ-600, PRETREATED WITH HCL AND 5PERCENT ALC, ALKALI. THE COLUMN TEMP. IS 140DEGREES, RATE OF N 58.6 ML-MIN, H 50 ML-MIN, AND AIR 250 ML-MIN. THE ELUTION TIME IS 3.0, 6.3, 26.9, AND 33.0 MIN FOR PYRIDINE, 3-PICOLINE, 3-PYRIDINECARBOXALDEHYDE, AND NICOTINONITRILE, RESP. A MIXT. OF 2-PICOLINE, 3-ETHYLPYRIDINE, 2,METHYL,5,ETHYLPYRIDINE, PICOLINONITRILE, NICOTINONITRILE, 2,METHYL,5,CYANO AND 2,CYANO,5,ETHYLPYRIDINE IS ANALYZED ON A COLUMN, 200 CM LONG, 0.4 CM DIAM., COLUMN TEMP. 170DEGREES, RATE OF N 33.5 ML-MIN. THE ELUTION TIME IS 2.2, 4.7, 6.0, 18.4, 11.8, 15.5 AND 41.9, RESP.

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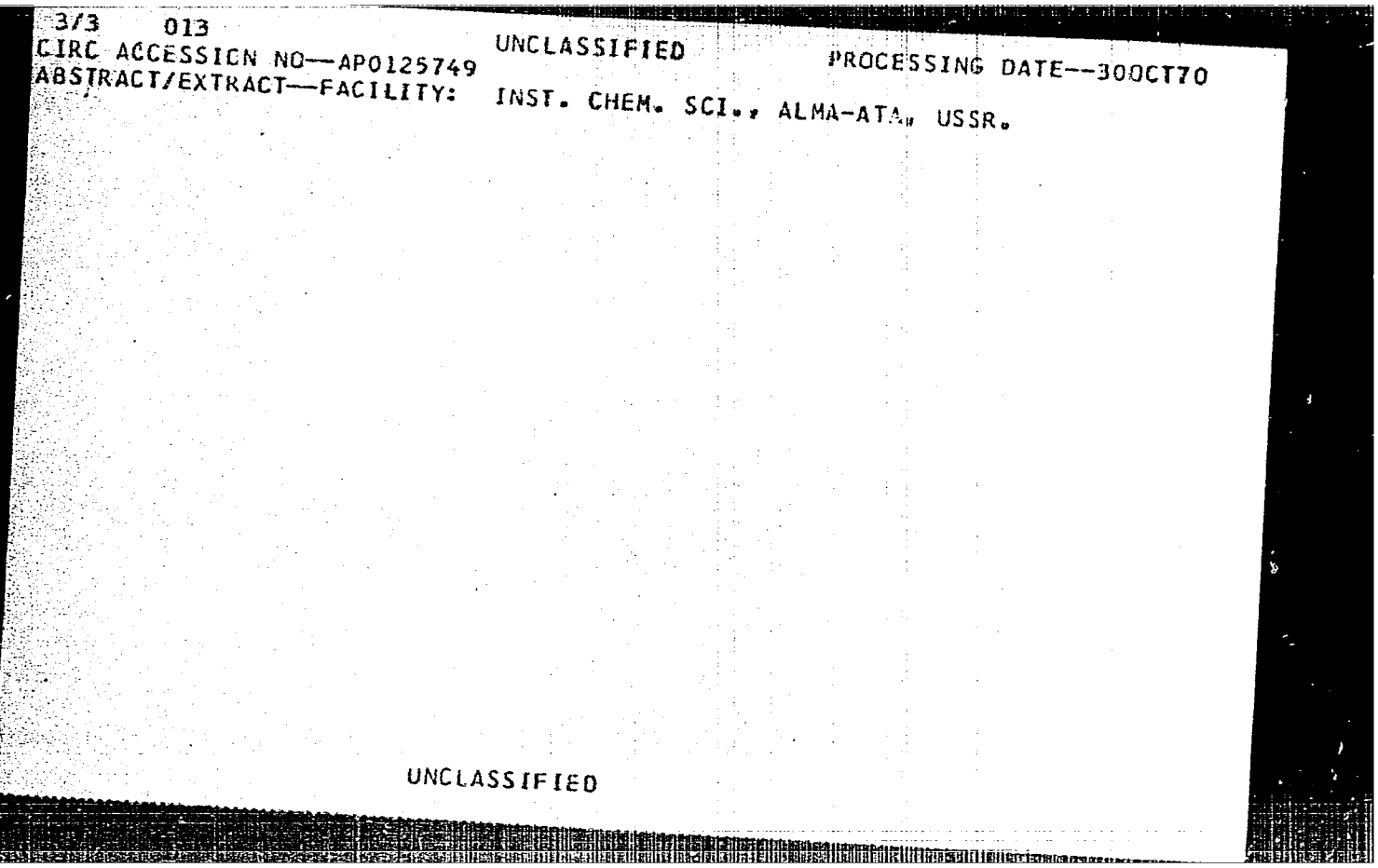

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CIRC ACCESSION NO--AP0125749 PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--FACILITY: INST. CHEM. SCI., ALMA-ATA, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--OXIDATION OF ORGANIC COMPOUNDS. 65. SYNTHESIS OF HALOGENATED TEREPHTHALONITRILES -U-

AUTHOR-(03)-RUKEIKHANOV, N.R., KUDINOVA, V.S., SUVOROV, B.V.

COUNTRY OF INFO--USSR

SOURCE--TR. INST. KHIM. NAUK, AKAD. NAUK KAZ. SSR 1970, 28, 49-61

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATED AROMATIC COMPOUND, BROMINATED ORGANIC COMPOUND, IODINATED ORGANIC COMPOUND, XYLENE, ORGANIC NITRILE COMPOUND, TEREPHTHALIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1127 STEP NO--UR/0000/70/028/000/0049/0061

CIRC ACCESSION NO--AT0134813

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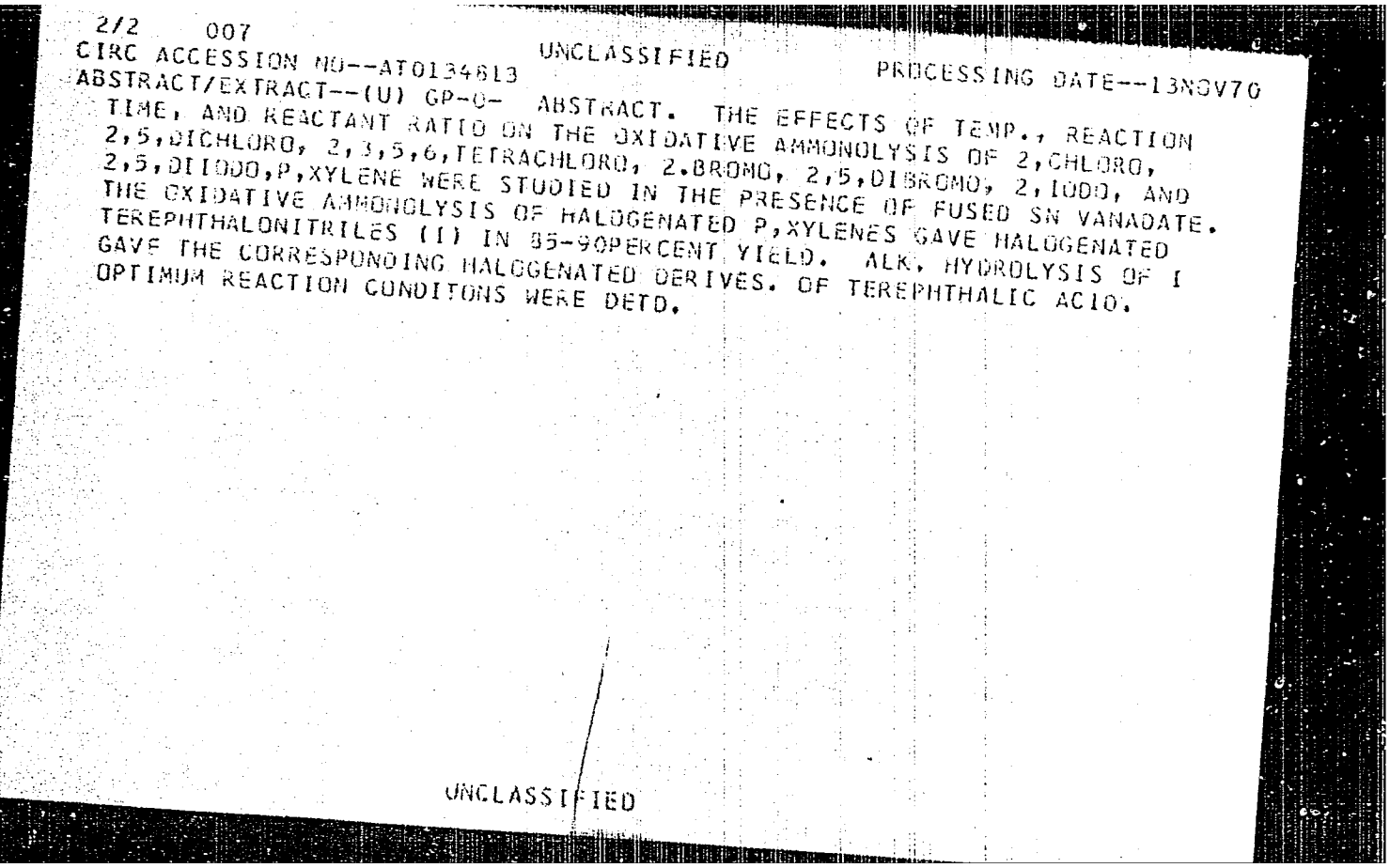

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CIRC ACCESSION NO--AT0134813 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF TEMP., REACTION TIME, AND REACTANT RATIO ON THE OXIDATIVE AMMONOLYSIS OF 2,CHLORO, 2,5,DICHLORO, 2,3,5,6,TETRACHLORO, 2.BROMO, 2,5,DIBROMO, 2,IODO, AND 2,5,DIIODO,P,XYLENE WERE STUDIED IN THE PRESENCE OF FUSED SN VANADATE. THE OXIDATIVE AMMONOLYSIS OF HALOGENATED P,XYLENES GAVE HALOGENATED TEREPHTHALONITRILES (I) IN 85-90PERCENT YIELD. ALK. HYDROLYSIS OF I GAVE THE CORRESPONDING HALOGENATED DERIVES. OF TEREPHTHALIC ACID. OPTIMUM REACTION CONDITIONS WERE DETD.

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USSR

ANDREVEVA-GALANINA, T., and SUVOROV, G.

"Noise Sickness"

Meditsinskaya Gazeta, 10 Mar 70, p 3

Abstract: Noise is detrimental to human health and must therefore be combatted. Noise not only disrupts mental work, but also lowers the efficiency of manual work, induces rapid fatigue, impairs the function of various internal organs, and causes neuroses. While the functional state of the ear changes very slowly, the central nervous system is most susceptible to this harmful stimulus. No organic lesions develop, but its functional state is impaired. Most reflexes are exaggerated, there is general irritability, insomnia, hyper- or hypotension, acute or dull pain in the heart, and gastrointestinal disorders, indicating involvement of the autonomic nervous system and the diencephalon. The electroencephalogram shows typica; changes, and there is a fine tremor of the hands. These are the main signs of noise sickness, which depend not only on the individual, but also on the quality, pitch, intensity and duration of the noise. The simplest therapeutic and preventive measure is to rotate workers between jobs done in noisy surroundings and jobs done in quiet places. Since noise pulses occurring with a frequency greater than 30 per

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USSR

ANDREYEVA-GALANINA, T., et al., Meditsinskaya Gazeta, 10 Mar 70, p 3

second have the same effect as steady noise, the intervals should be filled with sounds of a different quality and pitch, but the same intensity. Irregularly occurring noises should be preceded by light signals to diminish the startling reaction. Individuals with central nervous system disorders, abnormal blood pressure, or cardiac stenosis must not be employed on jobs done in noisy surroundings. All persons working in such places must be given periodic medical examinations. The Elbrus Sanatorium in Nal'chik has opened a special department for patients suffereing from noise sickness. Numerous commissions have been established to plan and enforce the implementation of comprehensive measures to reduce the level of noise.

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USSR

UDC 612.822.3+612.826

SUVOROV, G. A., Department of Industrial Hygiene, Leningrad Institute of Sanitation, Hygiene, and Medicine

"Cortical and Mesencephalic Reticular Formation Function After Prolonged Exposure to Pulsed and Steady Noise"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 6, 1972, pp 1303-1310

Abstract: In rabbits with implanted electrodes, pulsed noise in the course of a chronic (90 days) experiment resulted in a lasting increase in the excitability of the temporal cortex but depression of the reticular formation of the mesencephalon after an initial period (35 to 40 days) of indifference. Steady noise, on the other hand, immediately inhibited both the temporal cortex and reticular formation. This difference in physiological effect produced by the pulsed and steady noise is attributed to the difficulty in adapting to an irregular stimulus.

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USSR

UDC 613.644

ANDREYEVA-GALANINA, Ye. Ts., KADYSKIN, A. V., and SUVOROV, G. A., Sanitary Hygiene Medical Institute, Leningrad

"Some Unresolved Aspects of the Noise Problem"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 6-8

Abstract: Although the effects of industrial noise on the body have been extensively investigated, some matters of both practical and theoretical importance have received comparatively little attention. They include: (a) maximum permissible noise levels in relation to the age of the workers; (b) variations in the noise spectrum in relation to length of exposure and dominant frequency components; (c) effects of noise levels below the 63 to 8000 hz frequency range, including the infrasonic frequencies; (d) effects of pulsed noise; (e) effects of noise combined with other industrial factors; (f) possibility of noise having cumulative effects; (g) effects of noise on the female body; (h) effects of prolonged use of individual protective devices against noise.

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USSR

UDC 613.644

SUVOROV, G. A., Sanitary Hygiene Medical Institute, Leningrad

"Effect of Pulsed Noise on the Organism as a Function of the Intensity of Background Noise"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 70, pp 52-53

Abstract: Since pulsed noise is practically never found in pure state under industrial conditions, it was decided to study it in relation to the intensity of background noise and the quasiamplitude (effective) pulse power. An apparatus was designed in which coherent noise from a secondary source was admixed with a stepwise sequence of pulses. The masking of pulses by background noise is characterized by superposition of a strong excitation accompanied by a covering up of weaker homogeneous excitations. The critical threshold for background noise, at which the pulsed noise is evaluated exclusively by the so-called sharpness criterion, was determined over durations of 10, 50, 100, and 50 msec at levels of 80-90 db; masking was accomplished using white noise, the level of which was continuously changed from 0 to 100 db and vice versa. Five persons with normal hearing participated in the experiments. It was found that the critical thresholds did not depend on the intensity of

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SUVOROV, G. A., Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 70, pp 52-53

the pulsed noise and increased with an increase in the duration of the pulse. The effect of the noise on the central nervous system was related to the critical threshold. It was found that the shorter the duration of the noise, the sharper its perception becomes and the lower the critical threshold for its masking can be (high level of background noise). This is attributed to the fact that long signals ($\sim$100 msec and over) can produce a pronounced effect of reverse masking. In fact, the masking threshold with respect to the sharpness criterion (4.4$\pm$1.6 db for a duration of 100 msec) and the threshold for the biological activity of sound (5-10 db) do not differ much. An increase in the transition between the intensity of the background noise and the quasiamplitude pulse power produces an amplification effect of the action of noise on the organism. This effect is observed only up to critical threshold values of 20 db, however.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 612.82:612.26.014.45

SUVOROV, G. A., and MARAKUSHKIN, L. A., Sanitary Hygiene Medical Institute, Leningrad

"Effect of Pulsed Noise on Tissue Respiration in the Cerebral Cortex"

Moscow, Gigiyena i Sanitariya, No 7, Jul 70, pp 105-106

Abstract: Rats were exposed to steady and pulsed noise for various periods of time in order to study tissue respiration in the cerebral cortex. Steady noise inhibited oxidative processes, whereas pulsed noise intensified them. Exposure to steady noise for 3 hours reduced oxygen consumption in the temporal and parietal lobes by 9% and in the occipital lobe by 7%. Lengthening the exposure to 6 hours resulted in a further decrease in all of the lobes. Three hours' exposure to pulsed noise, on the other hand, increased oxygen consumption in the temporal and parietal lobes by 15% and in the occipital lobe by 12%. Lengthening the exposure produced a further but insignificant increase. The oxidative processes were virtually normal in all portions of the brain after 30 days' exposure to steady noise but not after the same length of exposure to pulsed noise.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 612.825.014.45

SUVOROV, G. A., Sanitary Hygiene Institute, Leningrad

"The Effect of Pulsed Noise on the Cerebral Cortex and the Ascending Activating System"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 37-42

Abstract: Rabbits with electrodes implanted in the brain were subjected to the action of pulsed noise consisting of an irregular succession of rectangular pulses with a interval between pulses of 2 sec (stabilization time 10 msec). The "white" noise had a duration of pulses equal to 100 msec, and a pulse level of 100 db. The effects of the pulsed noise were compared with those of stable "white" noise of the same mean pulse level (87 db). Determinations of the EEG and ECoG (electrocorticogram) during 6 hrs of action of the pulsed noise showed that a stable and persistent excitation of the reticular formation of the mesencephalon and of the temporal region of the cortex was produced, which lasted until the end of this period. On the other hand, stable noise caused pronounced shifts in the function of the temporal cortex and of the reticular formation only during the first hour; the excitation of these regions during subsequent action of the noise (after expiration of 1 hr) was insignificant.

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USSR

UDC 612.743.014.45

BUTUKHANOV, V. V., and SUVOROV, G. A., Leningrad Sanitary-Hygiene Medical Institute

"Bioelectrical Responses of Skeletal Muscles to Steady and Pulsed Noise"

Moscow, Gigiyena i Sanitariya, No 10, 1971, pp 21-25

Abstract: Thirty rabbits were exposed to three hours of steady or pulsed (periodic and aperiodic) noise in a soundproof chamber and action potentials were derived from electrodes implanted in the masseter, trapezius, longissimus dorsi, rectus abdominis, tibialis interior, and gastrocnemius. Analysis of 1080 electromyograms recorded in 60 experiments showed that both types of noise had a marked effect on the animals' motor system. Both caused perceptible trace changes on the EMG, but the pulsed noise resulted in more pronounced shifts in the bioelectrical activity of the skeletal muscles. Immediately after the cessation of noise, the EMG was generally characterized by the absence of action potential with only occasional high-voltage activity. Later, oscillations of bioelectrical activity reached significant proportions. During the first hour after exposure to the pulsed noise, the EMG showed volleys of high-voltage oscillations along with a uniform increase in intensity of the muscle potentials.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 517.53:517.947.42

LUBCHENKO, V. P., and SUVOROV, G. D., Corresponding Member of the Academy of Sciences Ukrainian SSR, Donetsk Computer Center of the Academy of Sciences Ukrainian SSR, Donetsk State University

"On the Concept of the Prime End Body in Carathéodory's Theory"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 71, pp 106-108

Abstract: The article contains some simple remarks on the concept of the "boundary element body" and gives a simple generalization of this aspect of Carathéodory's theory for the case of mappings of arbitrary metric spaces. The authors consider the two metric spaces $A^\alpha = (A, r^\alpha)$ and $A^\beta = (A, r^\beta)$ with the common carrier $A = \{X\}$ and different (in the general case) metrics $r^\alpha = r^\alpha(X_1, X_2)$ and $r^\beta = r^\beta(X_1, X_2)$. Let $\tilde{A}^\alpha$, $\tilde{A}^\beta$ be augmentations of these spaces with respect to r^α and r^β respectively. The elements of the augmented spaces $\tilde{A}^\alpha$ and $\tilde{A}^\beta$ are called points, designated as t^α and t^β and understood to be classes of equivalent fundamental sequences. Let $t^\alpha \in \tilde{A}^\alpha$ and $t^\beta \in \tilde{A}^\beta$. $t^\alpha | t^\beta \neq \emptyset$ is written if in A there exists an infinite sequence of points $\{X_n\}$ such that $(X_n) \in t^\alpha$ and $(X_n) \in t^\beta$. Said to be the body of

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

LUFERENKO, V. P., and SUVOROV, G. D., Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A — Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 71, pp 106-108

point $t^\alpha \in \tilde{A}^\alpha$ in a space is the set of points in the space A^β, which is given by the formula

$$t^\beta | t^\alpha | = \bigcup t^\beta$$

$$\{t^\beta \in \tilde{A}^\beta : t^\alpha | t^\beta \neq \theta\}. \qquad (1)$$

The point $t^\alpha \in \tilde{A}^\alpha$ is said to be simple with respect to $\tilde{A}^\beta$ if $t^\beta | t^\alpha |$ contains altogether one point of the space $\tilde{A}^\beta$.

The following theorem is given: In order for all points of the space A^α to be simple with respect to $\tilde{A}^\beta$ it is sufficient, and in the case of the compactness of $\tilde{A}^\alpha$ and $\tilde{A}^\beta$ it is also necessary, that the following condition be fulfilled: $E \in (a) \alpha \beta$ on A^α.

Corollaries of the theorem are given without proof of the theorem itself.

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USSR

LUFERENKO, V. P., and SUVOROV, G. D., Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A — Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 71, pp 106-108

The following theorem is also stated: In order for the point $t^\alpha \in \tilde{A}^\alpha$ to be simple with respect to $\tilde{A}_\beta$ it is sufficient, and in the case of the compactness of $\tilde{A}^\beta$ it is also necessary, that the following condition be fulfilled: $\omega^\beta(E, t^\alpha) = 0$.

The authors note that analogous constructions are possible in the case of aggregates of metric spaces and mappings, and this will be considered in another article.

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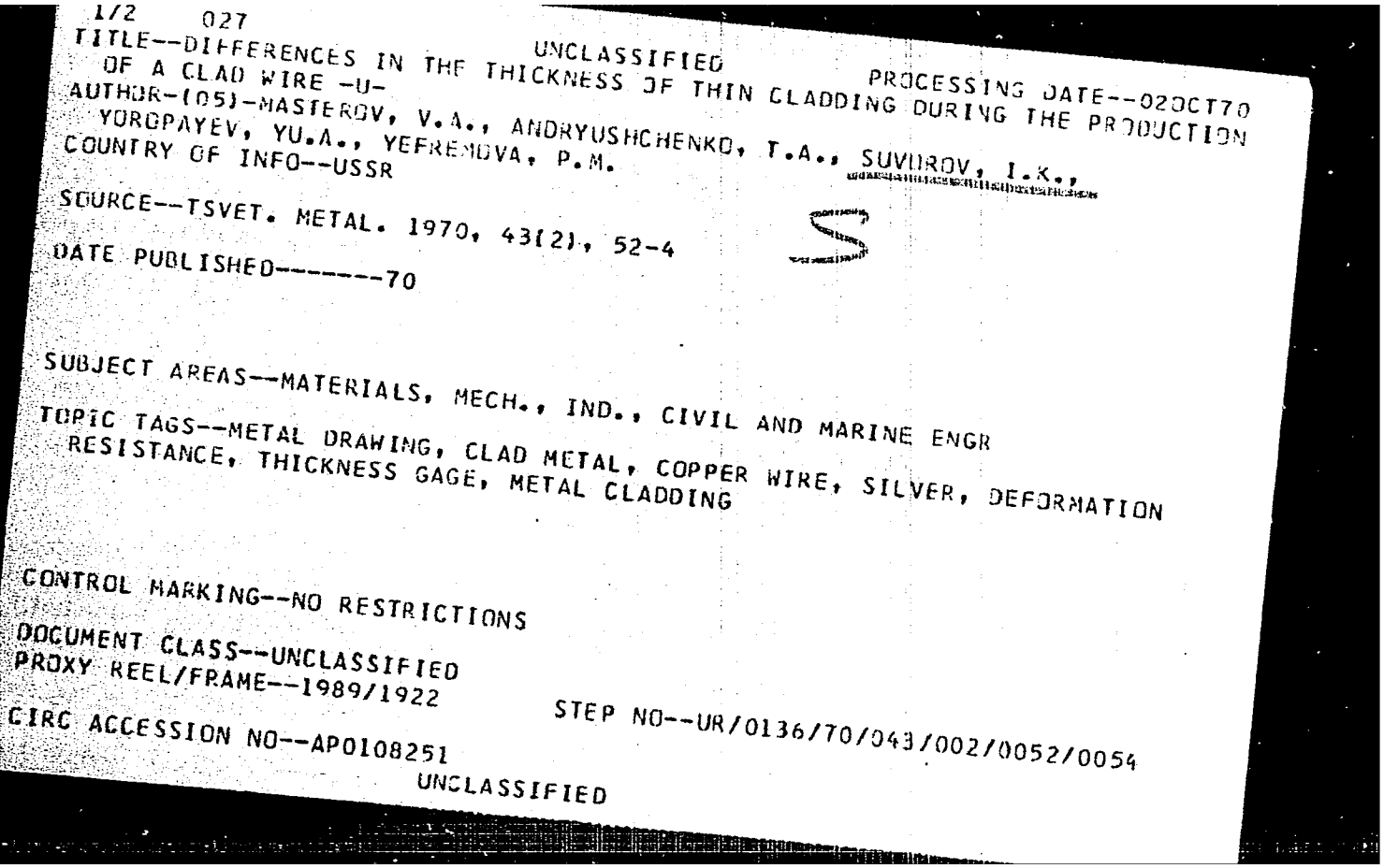

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--DIFFERENCES IN THE THICKNESS OF THIN CLADDING DURING THE PRODUCTION OF A CLAD WIRE -U-

AUTHOR-(05)-MASTEROV, V.A., ANDRYUSHCHENKO, T.A., SUVOROV, I.K., YORDPAYEV, YU.A., YEFREMOVA, P.M.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS AND THE POSSIBILITY OF DECREASING THE THICKNESS DIFFERENCES OF THIN CLADDINGS WERE INVESTIGATED FOR THE CU PLUS AG PAIR DURING THE PRESSING OF RODS AND DURING THE DRAWING FROM THEM OF WIRES SMALLER THAN OR EQUAL TO 150 MU IN DIAM. AND HAVING A COATING THICKNESS OF SIMILAR TO 7 MU. DURING THE PRESSING ON A VERTICAL 600 TON PRESS, THE ROLE OF PRIOR WELDING OF THE BAR, THE TOOL LUBRICANT, THE SHAPE OF THE DIE, AND THE HEATING AND DRAWING TEMPS., WAS INVESTIGATED. FOR THE SELECTION OF THE PROPER TEMP., THE RESISTANCE TO DEFORMATION OF CU AND OF AG WAS STUDIED. IN ORDER TO DET. THE MIN. THCIKNESS OF THE COATING, STATISTICAL METHODS MUST BE USED WHICH MEANS THAT A LARGE NO. OF MEASUREMENTS MUST BE TAKEN, WHICH IS OF SOME DIFFICULTY BECAUSE OF THE THINNESS OF THE COATINGS.

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USSR

UDC 612.825.014.3

VASILEVSKIY, N. N., TRUBACHEV, V. V., SUVOROV, N. B., Institute of Experimental Medicine, Academy of Sciences USSR, Leningrad

"Changes in Cortical Unit Impulse Activity During Selective Reinforcement of Chosen Interspike Interval Range"

Kiev, Neyrofiziologiya, Vol 4, No 4, Jul/Aug 72, pp 339-348

Abstract: The effect of selective automated reinforcement of either short or long interspike intervals in the somatosensory cortex was studied in thirty six adult curarized adult rabbits. Recordings were performed extracellularly using glass microelectrodes. Reinforcement was with painful stimuli using fine bipolar microelectrodes. The stimulators were operated automatically, the criterion for discharge being that the interspike interval lie in a given range.

It was observed that when short intervals were reinforced a decrease in average firing rate and an increase in the probability of the occurrence of long intervals immediately following short ones occured. When long intervals were reinforced the mean frequency of discharge increased and the number of long intervals decreased for one group of cortical neurons. For another group of cortical neurons though, a decrease in the number of long intervals occured and the mean discharge frequency decreased. The reorganization of impulse activity tended to reduce the number of intervals reinforced by

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USSR

VASILEVSKIY, N. N., et al., Neyrofiziologiya, Vol 4, No 4, Jul/Aug 72, pp 339-348

painful stimuli.

A discussion is given of the role of temporal interaction (synchronization) of ascending activating influences and their interaction with the excitatory and inhibitory phases in reciprocally interacting neuronal populations in the reorganization of impulse activity.

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USSR

UDC 547.756'757

AVRAMENKO, V. G., SHIRNYUK T. Ya., and SUVOROV, N. N., Moscow Chemico-Technological Institute imeni D. I. Mendeleyev, Moscow

"Derivatives of Indole. LXXXV. The Willgerodt-Kindler Reaction With 3-Acylindoles"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 759-761

Abstract: 3-Acylindoles Ind-C(=O)$(CH_2)_n$H (Ind = 3-indolyl; n = 1-4) (0.01 mole) were subjected to the Willgerodt-Kindler reaction carried out with sulfur (0.02 g-at) and morpholine (0.2 mole) at the boiling point of morpholine. Upon boiling of the reaction products with NaOH in EtOH, 3-indolylalkanic acids Ind-$(CH_2)_n$ COOH were obtained with a yield of 30, 21, 14, and 1% from the ketone with n equal to 1, 2, 3, and 4, respectively. The 3-indolylalkanic acid with n = 1 (3-indolylacetic acid, "heteroauxin") has auxin properties. The thiomorpholides of the indolylalkanic acids with n = 1,2,3, which formed as intermediate products in the first stage of the reaction, were also isolated. On conversion of skatylacetone Ind-$(CH_2)_2$C(=O)Me with S and morpholine, 3-indolylbutyric acid Ind-$(CH_2)_3$. COOH was obtained with a yield of 40-48%.

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USSR

UDC 547.757.541.69

KAYUMOV, V., SMUSHKEVICH, Yu. I., and SUVOROV, N. N., Moscow Chemico-Technological Institute imeni D. I. Mendeleyev, Moscow

"Derivatives of Indole. LXXXIV. Hydroxamic Acids of the Indole Series"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 756-758

Abstract: 3-Indolyl-aceto-, propio-, and butyrohydroxamic acids were obtained by reacting the ethyl esters of 3-indolyl-acetic, -propionic, and -butyric acid with hydroxylamine in the presence of KOH. On subjecting the hydroxamic acids to a Lossen rearrangement, symmetrical bis(3-indolyl-alkyl) ureas were obtained. Upon the Lossen rearrangement of 3-indolyl-propiohydroxamic, acid, N,O-bis/2-(3-indolyl)ethylcarbamoyl/-N-/3-(3-indolyl)propionyl/hydroxylamine was also isolated. The reaction of the hydroxamic acids with phenyl isocyanate led to O-(N-phenylcarbamoyl)-3-indolyl-alkylhydroxamic acids.

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USSR

UDC 574.754.755.756.757

PETROVA, G. N., SHNER, V. F., ALEKSEYEVA, L. M., and SUVOROV, N. N., Moscow Chemico-Technological Institute imeni Mendeleyev, Moscow

"Derivatives of Indole. LXXXIII. Synthesis of Indole and 5-Bromoindole From 2-Naphthol and 6-Bromo-2-naphthol"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 753-755

Abstract: Upon the oxidation of 2-naphthol and 6-bromo-2-naphthol with Na_2MoO_4 + 40% H_2O_2 in glacial acetic acid, alpha-carboxycinnamic acids were obtained. These acids were converted into the corresponding diamides which, on being subjected to the Hofmann reaction with NaOCl and KOH, yielded indole and 5-bromoindole, respectively. The oxidation of 5-nitro-2-naphthol under similar conditions led to the formation of the gamma-lactone of 6-nitro-2-carboxycinnamic acid. This compound could be converted into its amide by successive treatment with PCl_5 and liquid NH_3.

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USSR

UDC 547.753.757.07+546.79

DIMITREVSKAYA, L. I., SMUSHKEVICH, Yu. I., POZDNYAKOV, A. D., and SUVOROV, N.N.,
Moscow Chemico-Technological Institute imeni D. I. Mendeleev, Moscow

"Derivatives of Indole. LXXXII. Synthesis of Derivatives of Indole-^{15}N"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 516-517

Abstract: 3-Indolylacetic-^{15}N acid (I), tryptamine-1-^{15}N (II), and N, N-dimethyltryptamine-1-^{15}N (III) were synthesized. Indole-^{15}N was prepared by the cyclization of phenylhydrazone-1-^{15}N on gamma-Al_2O_3 (cf. I. D. Pletnev et al, Khim. Geterotsik. Soyed., 1632, 1972) and I by reacting indole-^{15}N with chloroacetic acid at 245-50° in an autoclave in the presence of KOH. The reaction of indole-^{15}N with oxalic acid dichloride yielded 3-in-dolyloxalylchloride-^{15}N, which was converted to 3-indolyloxalylamide-1-^{15}N (IV) and the corresponding dimethylamide (V) by reacting it with NH_3 and Me_2NH, respectively. Reduction of IV and V with $LiAlH_4$ in tetrahydrofuran led to the formation of II and III, respectively. The content of ^{15}N was 10.9% in indole-^{15}N, 10.7% in I, 5.33% in II, and 5.46% in III.

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USSR

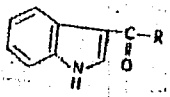
UDC 547.756.07

RUSINOVA, V. N., SMUSHKEVICH, YU. I., and SUVOROV, N. N., Moscow Chemical Technology Institute im. D. I. Mendeleyeva

"Synthesis of 3-Acylindols"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, 5, May 1973, pp 716-717

A study was made of the acylation of the indolylmagnesiumbromides by acid chlorides. It was determined that using a 1- to 5-fold excess of the indolylmagnesiumbromide resulted in the formation of the 3-acylindols with a 60-80% yield and facilitated their preparation. Six acylindols having the following formula were prepared:



The R group were mostly aryl or alkyl groups. Only the monoacylation product was observed.

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USSR

UDC 547.752.+542.943'95

RUSINOVA, V. N., SMUSHKEVICH, YU. I., KOZIK, T. A., and SUVOROV, N. N., Moscow Chemical Technological Institute Imeni D. I. Mendeleyev

"Indole Derivatives. LXXX. Novel Oxidative Rearrangement in the Indole Series"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 8, No 8, Aug 72, pp 1735-1739

Abstract: A new oxidative rearrangement was studied in the indole series on the example of the reaction of 3-(α-methylaminobenzyl)indole with KCN in presence of atmospheric oxygen. 2-Cyano-3-benzoyl-indole, 3-benzoylindole and indolyl-3-phenylacetonitrile were obtained as reaction products. The rearrangement to 2-cyano-3-benzoylindole does not occur in an inert atmosphere. It is an intermolecular rearrangement. It has been shown that indolyl-3-phenylacetonitrile reacts with various nucleophilic reagents forming 2-substituted 3-benzoylindoles.

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USSR

UDC 547.821.792'759.32:542.97

YAKHONTOV, L. N., SUVOROV, N. N., KANTEROV, V. YA., PODKHALYUZINA, N. YA., PRONINA, YE. V., STAROSTENKO, N. YE., and SHKIL'KOVA, V. N., All-Union Research Institute of Chemical Pharmaceutics imeni S. Ordzhonikidze, and the Moscow Institute of Chemical Engineering imeni D. I. Mendeleyev

"The Heterogenous Fischer Catalytic Reaction. IV. Catalytic Synthesis of 7-Azaindole and 2-Methyl-7-azaindole in the Presence of γ-Al_2O_3"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 656-658

Abstract: This is the first report of the synthesis of 7-azaindole (I) and 2-methyl-7-azaindole (II) by cyclization, respectively, of acetaldehyde pyridyl-2-hydrazone (III) or acetone pyridyl-2-hydrazone (IV) over γ-Al_2O_3 or γ-Al_2O_3 (2.6% F) at high temperatures. Both reactions, in addition to I or II, also yielded 2-amidopyridine and 3-methyl-s-triazole[3,4-a]-pyridine. Prior to the experiments the catalysts were activated by exposure to a flow of dry air for 6 hr. at 600°C for γ-Al_2O_3 and at 500°C for γ-Al_2O_3(2.6% F); III and IV were purified by recrystallization from hexane. For the reaction, 7% benzene solutions of III or IV were passed over one or the other of the catalysts at temperatures ranging from 250° to 500°C. The products of the reaction were separated

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YAKHONTOV, L. N., Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 656-658

either by partition chromatography on an aluminum oxide column or, in the case of I, by gas-liquid chromatography. Evaluation of the results showed that the fluorinated catalyst functioned more efficiently; with this catalyst the maximum yield of I was obtained at 420°C and amounted to 15%, while that of II approached 50% at 315°C.

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USSR

UDC 547.751'241.07

SHAMSHIN, V. P., SHNER, V. F., and SUVOROV, N. N., Moscow Chemical-Technological Institute Imeni D. I. Mendeleyev

"Indole Derivatives. LXXVI. Synthesis of Tris(1-benzylindolinyl-5)-phosphine oxide and Derivatives of Indolyl-5-phosphonic Acid"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 72, pp 498-501

Abstract: In a reaction of 1-benzyl-5-lithiumindole with dimethylchlorophosphate, tris(1-benzylindolinyl-5)phosphine oxide (I), m.p. 204-215° was isolated as a byproduct, in addition to the normally obtained dimethylester of 1-benzylindolinyl-5-phosphonic acid (II). The structure of (I) was proven by an independent synthesis and comparative analysis. Dehydration of (II) with chloranil yields dimethylester of 1-benzylindolyl-5-phosphonic acid, m.p. 89-90°. Catalytic dehydrogenation of this indoline is accompanied by debenzoylation, leading to the formation of a dimethyl ester of indolyl-5-phosphonic acid, m.p.141.5-143°, through a break in the P-C bond.

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USSR

UDC 547.752

VINOGRAD, L. KH., SHALYGINA, O. D., BULATOVA, N. N., KOSTYUCHENKO, N. P., ZYKOVA, T. N., MIKERINA, A. L., ARUTYUNYAN, G. S., and SUVOROV, N. N., All-Union Scientific Research Chemical and Pharmacentical Institute imeni Sergo Ordzhonikidze, Moscow

"Indole Derivatives. Report 72. Addition of Sulfur-Containing Reagents to Nitrovinylindole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 12, Dec 71, pp 15-17

Abstract: The addition of sulfur-containing nucleophilic reagents to unsaturated nitro-compounds of the indole series was studied. The addition reactions of seven new indole derivatives are detailed and the addition products identified. In-vitro therapeutic tests revealed a weak germistatic activity (500-250 mcg/ml) in 1-benzylmercapto-1-(1'-acetylindolyl-3)-2-aminoethane chloralhydrate relative to 17 microorganism strains. The study included general effects, effects on smooth muscles, circulation and respiration body temperature, interaction with hexenal and ipracid, antihistaminic, antispasmodic and anesthetic effects. The compound revealed weak pharmacological activity, weak spasmogenic action and slightly increased capillary permeability. It appears to promote the somnifacient effect of hexenal. The LD_{50} in intravenous administration to mice is 45 mg/kg. (1 table, 1 biblio. reference)

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UDC 615.31:547.75

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PREOBRAZHENSKAYA, M. N., ORLOVA, L. M., LIBERMAN, S. S., KOSINA, G. S., AVRAMENKO, V. G., SOROKINA, N. P., and SIVOROV, N. N., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Synthesis and Investigation of Pharmacological Activity of the Indole Series Hydroxyketones"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 1, Jan 72, pp 32-38

Abstract: 10 g of 3-chloroacetylindole (I) in 300 ml dimethylformamide is added to 18.3 g molten potassium acetate, the mixture is stirred at 60-70°, filtered, and evaporated. The residue is recrystallized from water yielding 44% of 3-acetoxyacetylindole (II), m.p. 139-140°. Analogously a series of other 3 α-acetoxyacylindoles is obtained. To synthesize 3-benzoylhydroxyacetylindole (III), m.p. 187-189°, an analogous procedure was used employing potassium benzoate instead of the acetate. When (II) was heated with 2% NaOH solution, it hydrolyzed easily yielding 3-hydroxyacetylindole (IV), m.p. 167-169°. 5-Acetoxyacetylindole, m.p. 123-124.5° was obtained similarly to (II) starting from 5-hydroxyacetylindole, m.p. 177-179°. In each group several representative compounds were synthesized using reported reactions. 3-Hydroxyacetylindole was found to have neurotropic activity; modifications in its structure as a rule led to a lower biological activity.

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USSR

UDC 577.391

SHASHKOV, V. S., ANASHKIN, O. D., SUVOROV, N. N., and MANAYEVA, I. A.,

"Effectiveness of Serotonin, Mexamine, AET, and Cystamine Administered Repeatedly After Gamma-Irradiation"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 621-623

Abstract: After rats had been irradiated with gamma-rays in a dose of 800 r, serotonin, mexamine (5-methoxytryptamine HCl), AET (S-betaaminoethylthiouronium bromide HBr), or cystamine was administered to them intraperitoneally four times (5, 15, 30, and 45 min after irradiation). As compared with a 10% rate of survival for control rats 30 days after irradiation, the rate of survival on administration of serotonin in four single doses of 2.3 and 3 mg/kg was 50 and 40%, respectively; on administration of mexamine in single doses of 2.5 and 4 mg/kg, 18 and 23.5%, respectively; on administration of cystamine in single doses of 3.33 and 5 mg/kg, 36 and 19%, respectively; and on administration of AET in single doses of 2 and 5 mg/kg, 44 and 23.5%, respectively. The results showed that the radiation protectors exerted a therapeutic effect in the doses indicated, which were small in comparison with the optimal doses effective on administration before irradiation. When the single doses of the substances tested were increased above the higher of the

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SHASHKOV, V. S., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 621-623

two mentioned, the rate of survival of the animals was reduced, reaching zero on the 30th day after irradiation.

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USSR

UDC 615.281.221.1:547.757

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AVRAMENKO, V. G., PERSHIN, G. N., MUSHULOV, P. I., MAKEYEVA, O. O., YERYSHEV, B. YA., SHAGALOV, L. B., SUVOROV, N. N., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR; All-Union Scientific Research Chemical and Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow, Ministry of Health USSR

"Indole Derivatives. Part V. Synthesis and Tuberculostatic Activity of Omega-Indolyl-3-Alkannic Acids"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 15-18

Abstract: Indolylalkannic acids have been the subject of numerous studies for quite some time. Most of this research, however, has been devoted to lower members of the series of indolylalkannic acids, namely indolyl-3-acetic, β-indolyl-3-propionic and γ-indolyl-3-butyric acids. It is expected that some of these compounds may possess physiological activity. Of particular interest is ω-indolyl-3-undecanoic acid, which is the indole analog of hydnocarpic acid. Indole alkylation with haloalkannic acids shows considerable promise. Earlier research describes the synthesis of heteroauxin from indole

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AVRAMENKO, V. G., et al, Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 15-18

and chloracetic acid. In recent years ω-chloroalkannic acids with an odd number of carbon atoms have become readily available. Indole was alkylated with ω-haloalkannic acids in a strongly alkaline medium by heating in an autoclave; 240 -- 250°C, 18 -- 20 atm pressure and a 1:2 indole-to-haloalkannic acid ratio appear to be the optimum reaction conditions. The yield of ω-indoly-3-alkannic acids was 42 -- 90%. The tuberculostatic activity was determined in vitro in a Soton medium with and without blood serum of a horse. Use was made of human microbacteria Academia and H37Rv. The compounds were found to have tuberculostatic activity.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 547.754+547.241

SHAMSHIN, V. P., SHNER, V. F., and SUVOROV, N. N., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze and Moscow Chemical-Technological Institute imeni D. I. Mendeleyev

"Organophosphorus Derivatives of Indoline and Indole. I. Synthesis of Indolinyl-5-phosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 537-540

Abstract: A suitable synthesis for 1-benzyl-5-bromoindoline (I) was developed. A mixture of 5-bromoindoline, $CaCO_3$ and chlorobenzene in acetonitrile was stirred for 4 hrs at 60°, poured into excess water, extracted with ether, dried, and evaporated. Succinic anhydride was added to the residue, followed by ether and 5% sodium carbonate solution. The mixture was stirred, extracted with ether, evaporated, dissolved in hexane, treated with charcoal and left standing, to yield 78.2% of (I), m.p. 40.5-42.5°. (I) converted to 1-benzyl-5-lithiumindoline and condensed with dimethylchlorophosphate yielded the dimethyl ether of 1-benzylindolinyl-5-phosphonic acid. Hydrogenation in acetic anhydride over palladium gave dimethyl ester of 1-acetylindolinyl-5-phosphonic acid, which hydrolyzed to indolinyl-5-phosphonic acid, m.p. 242-244°.

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USSR

UDC 615.31:547.751].012.1

PREOBRAZHENSKAYA, M. N., ORLOVA, Z. G., STAROSTINA, Z. G., LIBERMAN, S. S., SUKHININA, G. P., and SUVOROV, N. N., All Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Synthesis and Investigation of the Pharmacological Activity of 1-(Indolyl-3')-2-alkylaminoethanols"

Moscow, Khimiko-farmatsevticheskiy zhurnal, Vol 4, No 10, Oct 70, pp 5-9

Abstract: 1-(Indolyl-3')-2-alklaminoethanols were synthesized by hydrogenating the corresponding N- substituted 3-aminoacetylindoles, using Raney nickel as a catalyst. The resultant amino alcohols were converted to salts (chlorohydrates or adipinates) which were pharmacologically studied. The initial 3-alkylaminoacetylindoles were produced by interacting 3-chloroacetylindole or 3-bromoacetylindole with primary or secondary amines. The physicochemical properties of the 3-alkylaminoacetylindoles and 1-(indolyl-3')-2-alkylaminoethanols are tabulated. It was found that all amino alcohols containing the secondary amino group have sympathomimetic properties: they increase arterial blood pressure in rats and cats under anesthesia, cause contraction of the nictitating membrane, and constrict the peripheral vessels. This effect is

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PREOBRAZHENSKAYA, M. N., et al, Khimiko-farmatsevticheskiy zhurnal, Vol 4, No 10, Oct 70, pp 5-9

attributed to excitation of the α-adrenoreactive systems. The most active of all compounds studied was 1-(indolyl-3')-2-methylaminoethanol. This alcohol has only 1/10-1/20 the activity of adrenalin, but its effect is longer-acting. Amino alcohols containing the tertiary amino group did not cause contraction of the nictitating membrane, they reduced blood pressure and relaxed the peripheral vessels.

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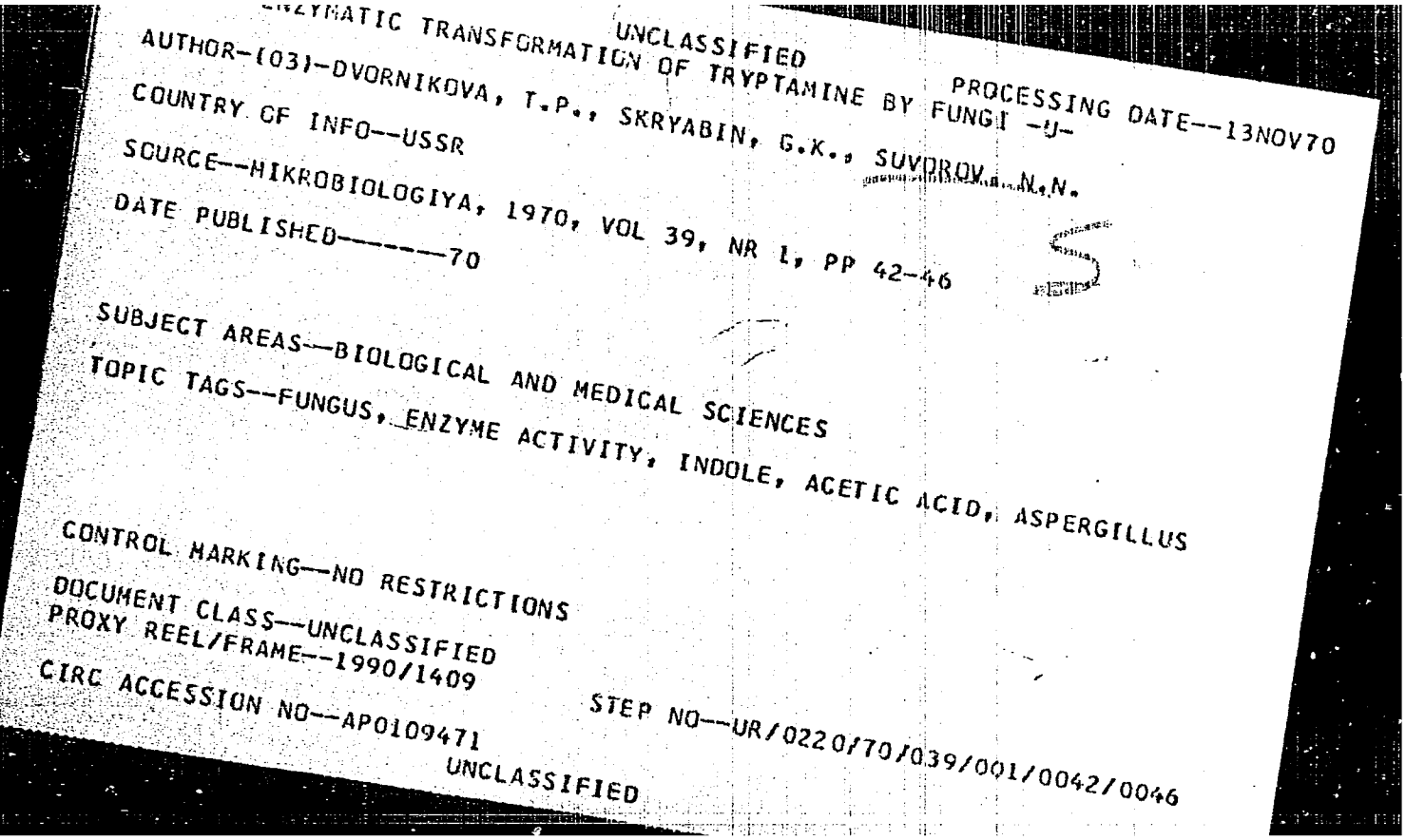

UNCLASSIFIED

ENZYMATIC TRANSFORMATION OF TRYPTAMINE BY FUNGI -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-DVORNIKOVA, T.P., SKRYABIN, G.K., SUVOROV, N.N.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 42-46

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FUNGUS, ENZYME ACTIVITY, INDOLE, ACETIC ACID, ASPERGILLUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1409

CIRC ACCESSION NO--AP0109471

STEP NO--UR/0220/70/039/001/0042/0046

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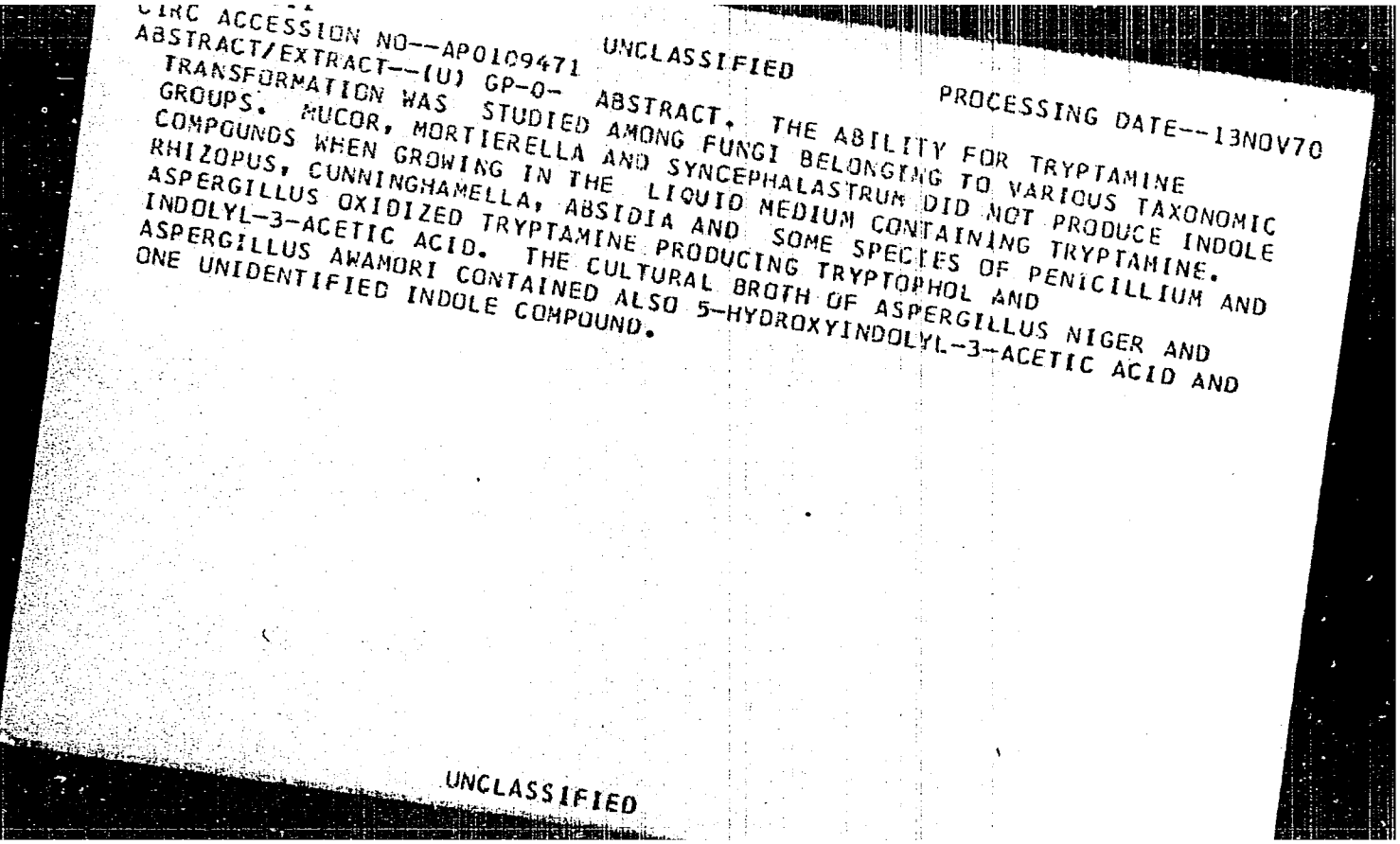

CIRC ACCESSION NO--AP0109471 UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABILITY FOR TRYPTAMINE TRANSFORMATION WAS STUDIED AMONG FUNGI BELONGING TO VARIOUS TAXONOMIC GROUPS. MUCOR, MORTIERELLA AND SYNCEPHALASTRUM DID NOT PRODUCE INDOLE COMPOUNDS WHEN GROWING IN THE LIQUID MEDIUM CONTAINING TRYPTAMINE. RHIZOPUS, CUNNINGHAMELLA, ABSIDIA AND SOME SPECIES OF PENICILLIUM AND ASPERGILLUS OXIDIZED TRYPTAMINE PRODUCING TRYPTOPHOL AND INDOLYL-3-ACETIC ACID. THE CULTURAL BROTH OF ASPERGILLUS NIGER AND ASPERGILLUS AWAMORI CONTAINED ALSO 5-HYDROXYINDOLYL-3-ACETIC ACID AND ONE UNIDENTIFIED INDOLE COMPOUND.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--QUANTITATIVE CHARACTERISTICS OF THE RADIOPROTECTIVE EFFECT OF MEXAMINE -U-

AUTHOR-(05)-YARMONENKO, S.P., SUVOROV, N.N., KAROCHKIN, B.B., AIRAPETYAN, G.M., OVAKIMOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(2), 78-82

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIRADIATION DRUG, AMINE DERIVATIVE, X RAY IRRADIATION, GAMMA RADIATION, CESIUM ISOTOPE, RADIATION DOSAGE, BONE MARROW

CONTROL MARKING--NO RESTRICTIONS,

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0460 STEP NO--UR/0205/70/010/001/0078/0082

CIRC ACCESSION NO--AP0121134

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121134

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIOPROTECTIVE EFFECT OF MEXAMINE (I) WAS EVALUATED QUANT. ON THE BASIS OF NOS. OF SURVIVING MICE AND RATS. THE ANIMALS WERE IRRADIATED WITH 700, 800, 900, OR 1000 R 180 KEV X RAYS, AND 950 R OF 190 KEV R RAYS, OR 1100 R PRIME137 CS GAMMA RAYS. I WAS APPLIED IN DOSES OF 1, 2.5, 5, 7.5, 15, 30 OR 75 MG-KG BODY WT. AND 2.5, 5, 10, 20, OR 40 MIN PRIOR TO THE IRRADN. IN BOTH MICE AND RATS, A SLIGHT PROTECTIVE EFFECT OF I WAS OBSERVED AT ALL DOSES FOLLOWING I.P. APPLICATION. INCREASING DOSES OF I RESULT IN INCREASES IN THE MAGNITUDE AND DURATION OF THE PROTECTIVE EFFECT. THE PROTECTIVE ACTION APPLIES NOT ONLY TO THE BONE MARROW, BUT ALSO TO THE GASTRO INTESTINAL SYNDROME. HOWEVER, THE DURATION OF THE PROTECTIVE ACTION IS SHORT. WITH DIFFERENT I DOSES THE PERCENTAGE OF SURVIVING MICE INCREASED FROM 0 TO 12-85PERCENT. FACILITY: INST. GIG. TRUDA PROFAZABOL., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 008

CIRC ACCESSION NO--AA0127698

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPDS. (I), CENTRAL NERVOUS SYTEM STIMULANTS, ARE USED IN MENTAL PATIENTS WITH ASTHENIC, ASTHENIC DEPRESSIVE, AND NEUROTIC STATES AND WITH NEUROLEPTICS IN THE TREATMENT OF SLUGGISH APATHETIC AND APATHETIC ABOULIC STATES. DOSES OF 0.1-0.8 ARE GIVEN FOR LESS THAN OR EQUAL TO 3 MONTHS. SHOWN ON MICROFICHE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INDOLE DERIVATIVES. XLIX. SYNTHESIS OF DL ALPHA MERCAPTO BETA 3 INDOLYL PROPIONIC ACID 3 INDOLYLTHIOLACTIC ACID -U-

AUTHOR-(02)-SUVOROV, N.N., BUYANOV, V.N.

S

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 377-80

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDOLE DERIVATIVE, ORGANIC SYNTHESIS, MERCAPTAN, PROPIONIC ACID, LACTIC ACID, HETEROCYCLIC BASE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0220 STEP NO--UR/0409/70/000/003/0377/0380

CIRC ACCESSION NO--AP0126007

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126007

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 36 G BRCMOMALONIC ESTER IN 80 ML MEOH IN A STREAM OF N (PURIFIED BY PASSING THROUGH PYROGALLOL SOLN.) WAS ADDED PHCH SUB2 SNA (FROM 18.7 G BROMOMALONIC ESTER IN 80 ML WHOLE REFLUXED 6 HR TO YIELD 61PERCENT PHCH SUB2 SCHICO SUB2 ET)SUB2 (I), B SUB1.5 148-53DEGREES, N 60-2DEGREES. SHOWN ON MICROFICHE.

FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

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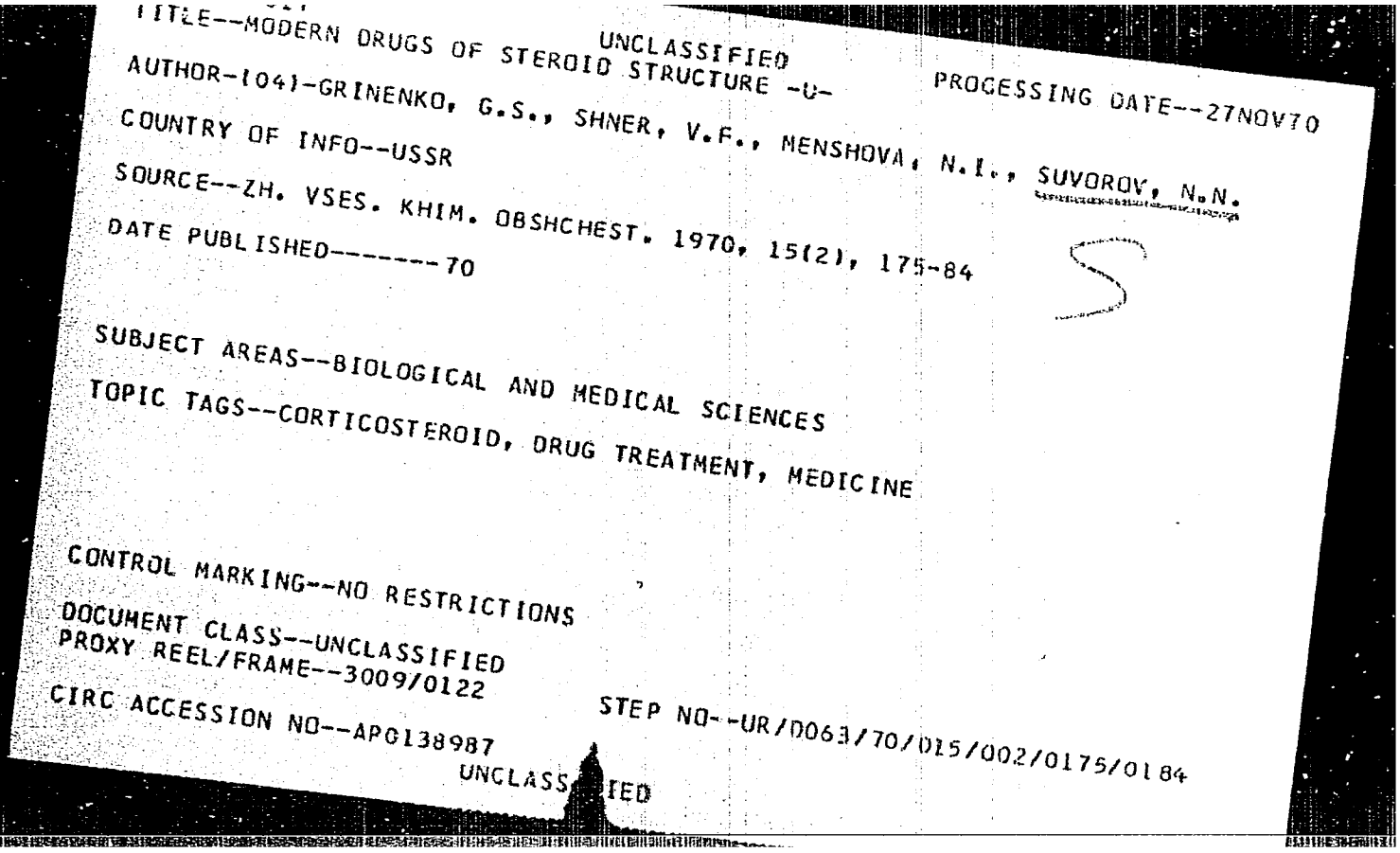

UNCLASSIFIED

TITLE--MODERN DRUGS OF STEROID STRUCTURE -U- PROCESSING DATE--27NOV70

AUTHOR-(04)-GRINENKO, G.S., SHNER, V.F., MENSHOVA, N.I., SUVOROV, N.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 175-84

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CORTICOSTEROID, DRUG TREATMENT, MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0122

CIRC ACCESSION NO--AP0138987 STEP NO--UR/0063/70/015/002/0175/0184

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0138987
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW COVERING MODIFIED CORTICOSTEROIDS, GESTAGENS, ANABOLIC PRODUCTS, AND THEIR RELATION TO MODERN MEDICAL PRACTICE.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--INDOLE -U-

AUTHOR-(03)-SUVOROV, N.N., AVRAMENKO, V.G., SHKILKOVA, V.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,904
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(7)
DATE PUBLISHED--04FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, INDOLE, HYDRAZONE, OXIDE CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1776 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132042
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132042
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INDOLE WAS PREPD. BY PASSING THE PHENYLHYDRAZONE OF ACH THROUGH A LAYER OF HETEROGENEOUS CATALYST, SUCH AS METAL OXIDES, HEATED TO 350 PLUS OR MINUS 10DEGREES.
FACILITY: MENDELEEV, D. I., CHEMICAL TECHNOLOGICAL INSTITUTE, MOSCOW.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC: 615.31:547.753'.012.1:542.9

SUVOROV, N.N., SMUSHKEVICH, YU.I., MAR'YANOVSKAYA, N.N., SULIMA, A.V., Moscow Institute of Chemical Technology imeni D.I. Mendeleyev, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Derivatives of Indole. LXI. Synthesis of 4(5)-(Indolyl-3)-Imidazole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 2, Feb 70, pp 10-12

Abstract: Continuing studies on the synthesis of indolylazoles, the authors prepared 4(5)-(indolyl-3)-imidazole (II) and studied its biological activity. The formamide method, consisting of the reaction of alpha-substituted ketones or alpha-diketones with formamide, was used to prepare (II) from 3-chloroacetylindole. The structure of (II) was confirmed by elemental analysis and special methods (paramagnetic resonance and infrared and mass spectra) and also by reverse synthesis. In the infrared spectrum of (II) absorption bands were observed at 3400 cm^{-1} (NH of indole ring) and at 3200-3100 cm^{-1} (NH of imidazole ring). 2-Mercapto-4(5)-(indolyl-3)-imidazole was also prepared by the reaction of the chloroanhydrate of 3-aminoacetylindole with potassium thiocyanate. The biological activity of (II) was studied at the All Union S ientific Research Chemico Pharmaceutical Institute imeni S. Ordzhonikidze. Under laboratory biocontrol during investigation of antiinflammatory action by Doctor of Biological Sciences S.S. LIBERMAN, it was established that (II) decreases the weight of granuloma; however, in activity it

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

SUVOROV, N.N., et al, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 2, Feb 70, pp 10-12

is inferior to phenylbutazone. Results of tests conducted in the chemico-therapy branch by Senior S ientific Worker T.N. ZYKOVA under the direction of Corresponding Member of the Academy of Medical Sciences USSR G.N. PERSHIN showed that the product also possesses bacteriological activity in relation to mycobacteria of tuberculosis (strain H37Rv). However, it inhibited the growth of tubercular bacillus only in a concentration of 250 mgm/ml.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

Acc. Nr: AP0049748 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0409

100421t Benzoindoles. I. Synthesis of 1-benzyl-4,9-dioxo-4,9-dihydrobenzo[f]indole. Suvorov, N. N.; Porotikova, V. A.; Fraksina, V. N. (Mosk. Khim.-Technol. Inst. im. Mendeleeva, Moscow, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1), 24–8 (Russ). To 6.9 g Mg turnings in 70 ml dry anisole was added dropwise during 45 min 45 g EtI, the mixt. heated 45–60 min at 60–70° cooled, 19.6 g pyrrole in 70 ml anisole added during 30 min, stirred 15 min at room temp., then at 50–60° till bubbles of C_2H_6 ceased to evolve, 43.4 g phthalic anhydride in 140 ml anisole added in 2–3 min at room temp. and the mixt. heated 1–1.5 hr on a boiling water-bath to give 18.8 g *o*-(2-pyrrolecarbonyl)benzoic acid (I), m. 184–5°, and 3 g II, b_{10} 240°, m. 240–1° (Me_2CO). Attempts at reducing the keto-group in I to CH_2-group gave a product which produced a characteristic bluish-violet color with Ehrlich reagent, but the free reduced acid or its salt was not isc-

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REEL/FRAME
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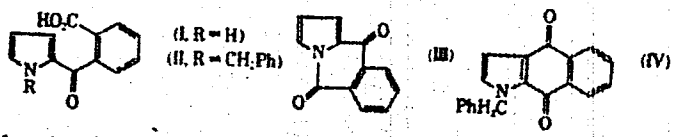

lated. A mixt. of 2.15 g I, 40 ml 35% KOH, and 6.5 g $PhCH_2Cl$ was boiled 6 hr to yield 2.45 g III, m. 139–40° (C_6H_6). To 1.6 g III in 200 ml warm *o*-xylene was added in small portions during 30 min 10 g P_2O_5 and the mixt. boiled 1.5 hr to give 0.3 g title compd. (IV), m. 178–9° (alc.).

S. K. Banjerjee

19801662

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR

UDC 632.95

SHAGALOV, L. B., SUVOROV, N. N.

"Procedure for Obtaining 3-indolylacetic Acid"

USSR Author's Certificate No 160186, filed 26 Mar 63, published 14 Jun 72 (from RZh-Khimiya, No 6 (II), 1973, Abstract No 6N728P)

Translation: The plant growth stimulator 3-indolylacetic acid (heteroauxine) (I) is obtained in one stage by the interaction of indol (II) and chloracetic acid (III) in the presence of 17% alkali. Example: 5.85 grams of II, 14 grams of III and 150 ml of 17% aqueous solution of KOH are placed in a 0.5 liter autoclave, the autoclave is filled with N_2 to a pressure of 5 gage atmospheres, the reaction mixture is heated for 15 hours at 285-290° (the pressure reached 85-90 gage atmospheres), it is cooled and filtered. On cooling, the filtrate is acidified with concentrated HCl (acid) to an acid reaction to Congo, it is held for 2-3 hours at 8-10°, and 4.52 grams of I are isolated with a melting point of 159-162° and a yield of 51%.

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USSR

UDC 546.46'621'831'21

SUVOROV, S. A., KLYUCHAROV, YA. V., and KOZLOVA, O. B.

"Distribution of Magnesium Oxide in Compounds in the System $MgO-Al_2O_3-ZrO_2$"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

Abstract: Phase conversions were studied in the trinary system $MgO-Al_2O_3-ZrO_2$ as functions of the chemical activity of the initial components. In order to exclude the influence of an excess of any given component, they were mixed in equal molar ratios. The distribution of magnesium oxide in complex compounds of the composition MgO: Al_2O_3 : ZrO_2 = 1 : 1 : 1 was found to depend on the chemical activity of the initial components and to be accompanied by the formation of both magnesial-alumina spinel and solid solutions of MgO in ZrO_2. The greatest quantity of solid solution of magnesium oxide in zirconium dioxide is formed in complex compounds involving magnesium oxide annealed at 1750°

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USSR

SUVOROV, S. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

C, electrically melted corundum, and nitric acid zirconium. By using components with various chemical activities, it is possible to change the final phase composition of compounds in the $MgO-Al_2O_3-ZrO_2$ systems with identical initial material composition. The course of curves of thermal expansion of these compounds depends directly on the phase composition.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

USSR UDC 546.46'621'831'21

SUVOROV, S. A., KLYUCHAROV, YA. V., and KOZLOVA, O. B.

"Distribution of Magnesium Oxide in Compounds in the System $MgO-Al_2O_3-ZrO_2$"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

Abstract: Phase conversions were studied in the trinary system $MgO-Al_2O_3-ZrO_2$ as functions of the chemical activity of the initial components. In order to exclude the influence of an excess of any given component, they were mixed in equal molar ratios. The distribution of magnesium oxide in complex compounds of the composition $MgO: Al_2O_3 : ZrO_2 = 1 : 1 : 1$ was found to depend on the chemical activity of the initial components and to be accompanied by the formation of both magnesial-alumina spinel and solid solutions of MgO in ZrO_2. The greatest quantity of solid solution of magnesium oxide in zirconium dioxide is formed in complex compounds involving magnesium oxide annealed at 1750°

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USSR

SUVOROV, S. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 659-664

C, electrically melted corundum, and nitric acid zirconium. By using components with various chemical activities, it is possible to change the final phase composition of compounds in the $MgO-Al_2O_3-ZrO_2$ systems with identical initial material composition. The course of curves of thermal expansion of these compounds depends directly on the phase composition.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--VOLUME CHANGES IN A PERICLASE FERRUGINOUS SPINEL SYSTEM -U-

AUTHOR-(03)-KUZNETSOV, YU.D., KLYUCHAROV, YA.V., SUVOROV, S.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 86-90

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPINEL, SOLID SOLUTION, IRON OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0848 STEP NO--UR/0363/70/006/001/0086/0090

CIRC ACCESSION NO--AP0118024

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0118024
ABSTRACT/EXTRACT--(U) GP-0- ABSTRRACT. VOL. CHANGES ARE INSIGNIFICANT IN THER PERICLASE FERRUGINOUS SPINEL SYSTEM ACCOMPANYING THE FORMATION AND DECOMPN. OF SOLID SOLNS. OF A GIVEN SYSTEM WITHOUT CHANGING THE VALENCY STATE OF FE. THE REDN. OF FE OXIDES IN THE GIVEN SYSTEM IS ACCOMPANIED BY A DECREASE IN THE VOL. OF THE PHASES FORMING, WHEREAS OXIDN. IS ACCOMPAINED BY AN INCREASE IN THE SAME. FACILITY: LENINGRAD, TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--SELECTIVE DISSOLUTION OF CHROMIUM SPINEL COMPONENTS IN PERICLASE -U-

AUTHOR-(03)-KLYUCHAROV, YA.V., KUZNETSOV, YU.D., SUVOROV, S.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 809-13

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SPINEL, CHROMIUM, MAGNESIUM OXIDE, MAGNESIUM, HIGH TEMPERATURE HEAT TREATMENT, IRON OXIDE, ALUMINA, SOLID SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0017 STEP NO--UR/0363/70/006/004/0809/0813

CIRC ACCESSION NO--AP0132317

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220006-4

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132317

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE TRANSFORMATIONS TAKING PLACE DURING THE INTERACTION BETWEEN PERICLASE AND CR SPINEL ARE EXAMD. FOR COMPNS. OF MGO NG (AL SUB1, X,Y CR SUBX FE SUBY) TYPE (X EQUALS 0.16, 0.46, 0.61; Y EQUALS 0.20, 0.22, 0.23). DURING FIRING OF THESE COMPNS. THE DISSOLN. OF INDIVIDUAL COMPONENTS OF THE SPINEL IN THE PERICLASE IS NOT THE SAME: UP TO 1400DEGREES, PREDOMINANT DIFFUSION OF FEO INTO THE PERICLASE IS OBSERVED, WHILE AT HIGHER TEMPS. (1600-1750DEGREES) THE DISSOLN. IN THE PERICLASE OF TRIVALENT CATIONS DEVELOPS SIGNIFICANTLY. IN THE COMPN. OF THE SPINEL, WHICH DISSOLVES IN THE PERICLASE, THE CONTENT OF THE FE OXIDES PRESENT IS HIGHER IN THE CASE OF THE PERICLASE COMPNS. WITH HIGH ALUMINA RATHER THAN HIGH CHROMIUM SPINELS. THE PERICLASE COMPNS. WITH HIGH ALUMINA RATHER THAN HIGH CHROMIUM SPINELS. THE COMPN. OF THE SPINEL PPTG. FROM THE SOLID SOLN. WITH THE PERICLASE AND THE AMT. OF FE OXIDES WHICH REMAIN IN IT ARE DETD. BY THE DECOMPN. RATE OF THE SOLID SOLNS. WHICH, IN TURN, DEPENDS ON THE DEGREE OF SUPERSATN. OF THE LATTER BY THE SPINEL. DURING THE COOLING PROCESS FROM HIGH TEMPS. (1600-1750DEGREES), A MORE COMPLETE DECOMPN. OF THE SPINEL PERICLASE SOLID SOLNS. TAKES PLACE. THE DISTRIBUTION OF THE FE OXIDES BETWEEN THE PERICLASE AND THE SPINEL IS DETD. BY THE COMPN. OF THE LATTER. IN CASE OF HIGH ALUMINA SPINELS, A CONSIDERABLE PORTION OF THE FE OXIDES IS PRESENT IN THE SOLID SOLN. WITH THE PERICLASE, WHERE THEY ARE REPRESENTED PRIMARILY BY THE FEO.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

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USSR

UDC 537.312.62

GRUZNOV, YU. A., KORNIYENKOVA, T. N., PROKOSHIN, A. F., SUVOROV, V. A.

"Superconducting Compositional Materials"

Sb. tr. TsNII chern. metallurgii (Collected Works of the Central Scientific Research Institute of Ferrous Metallurgy), 1971, vyp. 78, pp 118-121 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6D448)

Translation: The superconducting compositional materials have the greatest current carrying capacity by comparison with ordinary superconductors. The application of these materials have permitted a significant increase in the current carrying capacity of the superconductors and an increase in the thermal stabilization of the superconducting system. In this paper a study has been made of the effect of cold deformation, the annealing temperature and the delay time on the critical current density J_{cr} in magnetic fields to 7.2 milliamps/meter (90 kiloersteds) in superconducting compositional materials of circular cross section with superconducting bands of Nb-Ti alloy.

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USSR

UDC 537.312.62

IL'ICHEV, A. I., MOLOTILOV, B. V., SUVOROV, V. A., FEDOTOV, L. N., SHIRYAYEV, YU. P.

"Properties of Superconducting Materials"

Sb. tr. TsNII chern. metallurgii (Collected Works of the Central Scientific Research Institute of Ferrous Metallurgy), 1971, vyp. 78, pp 108-110 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6D450)

Translation: In recent years the Central Scientific Research Institute of Ferrous Metallurgy has developed and mastered the production of the following superconducting materials: 65BT, wire (ChMTU 1-29-66); 50BT, wire (ChMTU/TsNIIChM 1458-67); 35BT, wire (ChMTU/TsNIIChM 1489-69); 70B, tape (ChMTU/TsNIIChM 1491-69); SKM, compositional material (ChMTU/TsNIIChM 1487-69). In this survey a study is made of the technological and the physical-mechanical properties of the indicated materials, and recommendations are made with respect to their application.

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1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DETERMINATION OF LIMITING EFFECTIVE VELOCITY ON THE TRAVEL TIME CURVE OF REFLECTED WAVES AT ARBITRARY CHANGE OF THE VELOCITY WITH DEPTH
AUTHOR--SUVOROV, V.D.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 2, PP 92-100

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2/2 010 UNCLASSIFIED

CIRC ACCESSION NO--AP0103105 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POSSIBILITY OF LIMITING EFFECTIVE DETERMINATION ON THE TRAVEL TIME CURVE OF REFLECTED WAVES FOR THE CASE OF ARBITRARY DIVISION IS SHOWN. THE CHARACTER OF ITS DEVIATION FROM AVERAGE VELOCITY FOR SOME MORE DISTRIBUTED LAWS OF THE CHANGE OF TRUE VELOCITY WITH THE DEPTH IS STUDIED. THE SIMPLE FORMULA OF LIMITING EFFECTIVE VELOCITY VALUE CALCULATION IS OBTAINED.

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USSR

UDC 539.192/.194+535.33/.34.01

KRUMSHTEYN, Z. V., PETRUKHIN, V. I., SMIRNOVA, L. M., SUVOROV, V. M., YUTLANDOV, I. A.

"Investigation of the Character of the H-O Bond in Certain Oxygen-Containing Acids With the Aid of π^--Meson Capture by Hydrogen"

Issledovaniye khraktera svyazi H-O v nekotorykh kislorodsoderzhashchikh kislotakh s pomoshch'yu zakhvata π^--mezonov vodorodom (cf. English above), Joint Institute of Nuclear Research, Laboratory of Nuclear Problems, No. P12-5224, Preprint, Dubna, 1970, 10 pp, ill. (from RZh-Fizika, No 5, May 71, Abstract No 5D98)

Translation: The degree of ionicity of the H-O bond in sulfuric acid, nitric acid, phosphoric acid, boric acid, and oxalic acid was evaluated with the aid of π^--meson capture by hydrogen. Oxalic acid should belong to a group of stronger acids on the basis of the degree of the ionicity of the H-O bond.

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USSR S UDC: 621.374.33

VASIL'YEV, Ye. A., DENISOV, A. S., SUVOROV, V. M., SHCHETKOVSKIY, A. I.

"A Nanosecond Coincidence Circuit"

Tr. 7-y Konferentsii po yadern. elektron. T. 2, Ch. 2 (Works of the Seventh Conference on Nuclear Electronics. Vol 2, Part 2), Moscow, Atomizdat, 1970, pp 167-170 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7G314)

Translation: In this coincidence circuit, each channel consists of an input limiter based on two semiconductor diodes, two amplifiers, a transistorized limiter, and a shaper based on transistor with delay line connected in the emitter circuit, with a sampling element common to all channels and based on a tunnel diode, and an output emitter follower. The circuit is made in the form of a standardized module with bilateral printed circuit; this prevents "creep-through" in a single channel. Bibliography of two titles. N. S.

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+39)

USSR

UDC 621.52:539.23

TERENT'YEV, YU.P., ISHIMBAYEV, R.V., LIKHTMAN, A.YE., NEMIROVSKIY, L.N., SEYDMAN, L.A., SUVOROV, V.N., MOROZOV, G.A.

"Vacuum Deposition Unit With Electron Beam Evaporator [DE-394, 11 pp, 2 fig]

Elektron. prom-st'. Nauch.-tekhn.sb (Electronics Industry. Scientific-Technical Collection), 1971, No 5, p 62 (from RZ--Elektronika i yeye primeneniye, No 5, March 1971, Abstract No 5A45)

Translation: A vacuum deposition device was developed with an electron beam evaporator for deposition of layers of metals and semiconductors during their evaporation by the non-crucible method. The evaporator consists of an electron gun, a focusing and defocusing system and a magnetic prism. Use of the magnetic prism, which turns the electron beam by 90°, makes it possible to eliminate completely covering up [zapyleniye] of the electron gun by the material being evaporated. The gun is removed from the evaporation zone and consequently heating of the substance being evaporated and the gas precipitated on it does not affect it. This assures great reliability of evaporation, the period of continuous operation of which $\geq$ 50 hours and is determined only by the lifetime of the cathode of the electron gun. The diameter of the evaporation zone with an accelerating voltage of 20 kv and a beam current up to 25 mA is not more than 1 mm. The distance from the evaporation zone to the substrate is 60 mm. A.F.

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